

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: P242709

Luminaire Tested: S124RDRP-S1020D835-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242709  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-26)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124RDRP-S1020D835-X4F0-XX-UDD-F-W  
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: -

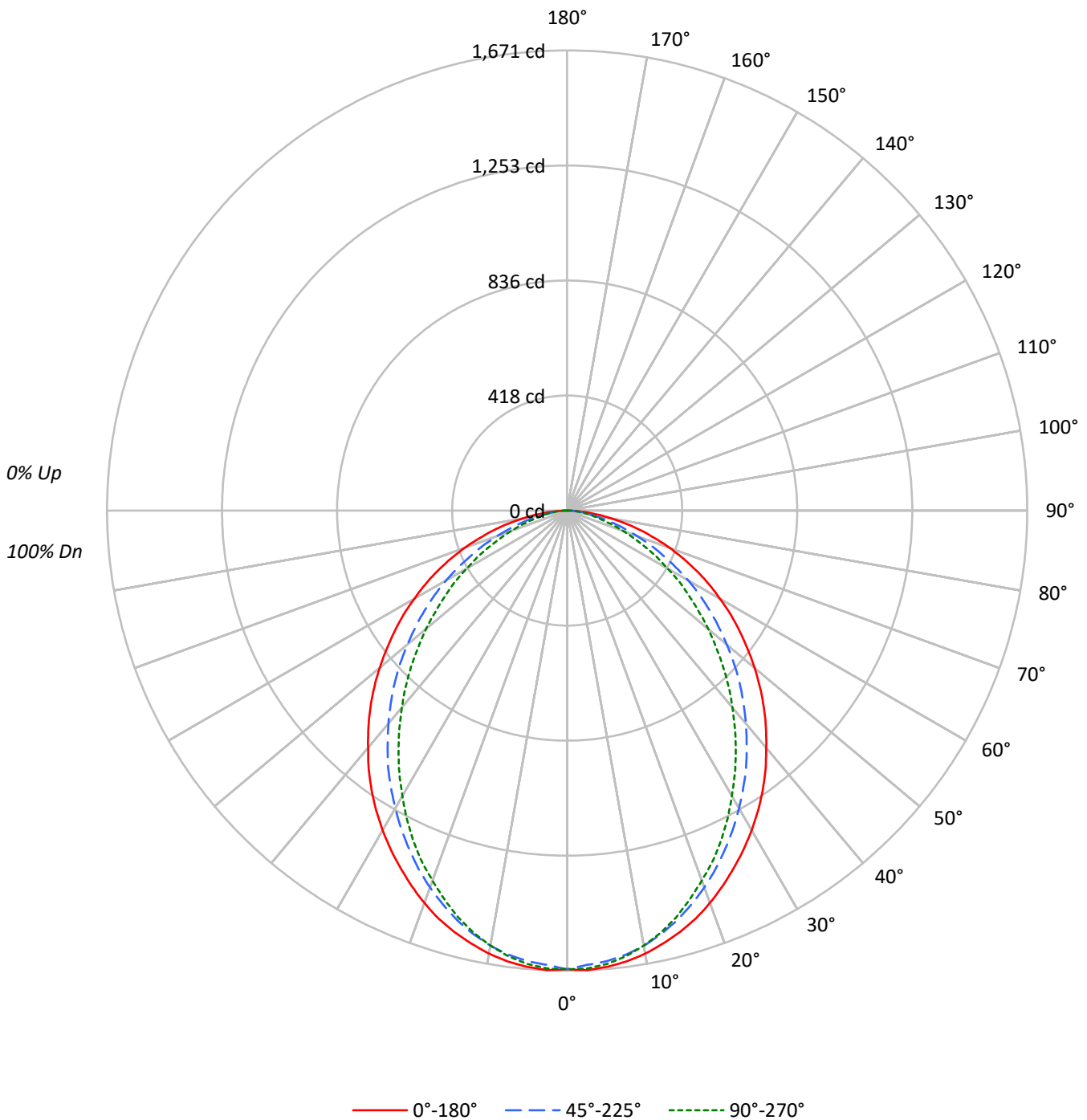
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3848.2 lumens  
Efficiency: N/A  
Efficacy: 110.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.09 / 1.24  
Luminous Opening: Rectangular (W 0.31' x L: 3.88' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 34.8  
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 | 105 | 101 | 98  | 107 | 103 | 99  | 96  | 99  | 96  | 93  | 95  | 92  | 90  | 91  | 89  | 87  | 85  |    |    |    |    | 85  |   |  |   |
| 2   | 100 | 93  | 86  | 81  | 98  | 91  | 85  | 80  | 87  | 82  | 78  | 84  | 80  | 76  | 81  | 78  | 74  | 72  |    |    |    |    | 72  |   |  |   |
| 3   | 92  | 82  | 74  | 68  | 89  | 80  | 73  | 67  | 77  | 71  | 66  | 75  | 69  | 65  | 72  | 68  | 64  | 62  |    |    |    |    | 62  |   |  |   |
| 4   | 84  | 73  | 65  | 58  | 82  | 72  | 64  | 58  | 69  | 62  | 57  | 67  | 61  | 56  | 65  | 60  | 56  | 54  |    |    |    |    | 54  |   |  |   |
| 5   | 78  | 66  | 57  | 51  | 76  | 65  | 56  | 50  | 62  | 55  | 50  | 61  | 54  | 49  | 59  | 53  | 49  | 47  |    |    |    |    | 47  |   |  |   |
| 6   | 72  | 59  | 51  | 45  | 70  | 58  | 50  | 44  | 57  | 49  | 44  | 55  | 49  | 44  | 53  | 48  | 43  | 41  |    |    |    |    | 41  |   |  |   |
| 7   | 67  | 54  | 46  | 40  | 65  | 53  | 45  | 40  | 52  | 45  | 39  | 50  | 44  | 39  | 49  | 43  | 39  | 37  |    |    |    |    | 37  |   |  |   |
| 8   | 63  | 50  | 41  | 36  | 61  | 49  | 41  | 36  | 48  | 40  | 35  | 46  | 40  | 35  | 45  | 39  | 35  | 33  |    |    |    |    | 33  |   |  |   |
| 9   | 59  | 46  | 38  | 32  | 57  | 45  | 37  | 32  | 44  | 37  | 32  | 43  | 36  | 32  | 42  | 36  | 32  | 30  |    |    |    |    | 30  |   |  |   |
| 10  | 55  | 42  | 35  | 29  | 54  | 42  | 34  | 29  | 41  | 34  | 29  | 40  | 33  | 29  | 39  | 33  | 29  | 27  |    |    |    |    | 27  |   |  |   |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 14804 | 14804 | 14804 |
| 5°  | 14838 | 14656 | 14747 |
| 10° | 14745 | 14480 | 14480 |
| 15° | 14576 | 14176 | 14071 |
| 20° | 14343 | 13776 | 13523 |
| 25° | 14046 | 13308 | 12970 |
| 30° | 13757 | 12815 | 12278 |
| 35° | 13437 | 12302 | 11583 |
| 40° | 13052 | 11720 | 10832 |
| 45° | 12697 | 11142 | 10068 |
| 50° | 12291 | 10475 | 9258  |
| 55° | 11857 | 9782  | 8379  |
| 60° | 11381 | 9022  | 7481  |
| 65° | 10943 | 8072  | 6598  |
| 70° | 10307 | 7028  | 5601  |
| 75° | 9503  | 5825  | 4554  |
| 80° | 8293  | 4438  | 4177  |
| 85° | 7027  | 4029  | 3774  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 12697 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 156.6  | 4.1       |
| 10°-20°   | 436.7  | 11.3      |
| 20°-30°   | 630.4  | 16.4      |
| 30°-40°   | 714.5  | 18.6      |
| 40°-50°   | 689.9  | 17.9      |
| 50°-60°   | 573.5  | 14.9      |
| 60°-70°   | 395.9  | 10.3      |
| 70°-80°   | 200.0  | 5.2       |
| 80°-90°   | 50.8   | 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°    | 1223.7 | 31.8      |
| 0°-40°    | 1938.2 | 50.4      |
| 0°-60°    | 3201.5 | 83.2      |
| 0°-90°    | 3848.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3848.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1666 | 1666  | 1666 | 1666  | 1666 |      |
| 5°  | 1663 | 1658  | 1642 | 1655  | 1653 | 158  |
| 15° | 1584 | 1572  | 1540 | 1538  | 1529 | 446  |
| 25° | 1432 | 1409  | 1357 | 1335  | 1322 | 660  |
| 35° | 1238 | 1198  | 1134 | 1090  | 1067 | 774  |
| 45° | 1010 | 963   | 886  | 824   | 801  | 779  |
| 55° | 765  | 714   | 631  | 565   | 541  | 684  |
| 65° | 520  | 466   | 384  | 329   | 314  | 514  |
| 75° | 277  | 230   | 170  | 140   | 133  | 292  |
| 85° | 69   | 43    | 40   | 37    | 37   | 80   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1665.5 | 1665.5 | 1665.5 | 1665.5 | 1665.5 |
| 2.5°  | 1670.6 | 1665.5 | 1651.4 | 1665.5 | 1664.2 |
| 5°    | 1662.9 | 1657.8 | 1642.5 | 1655.3 | 1652.7 |
| 7.5°  | 1651.4 | 1646.3 | 1627.2 | 1636.1 | 1632.3 |
| 10°   | 1633.6 | 1627.2 | 1604.3 | 1609.4 | 1604.3 |
| 12.5° | 1610.6 | 1603.0 | 1574.9 | 1577.5 | 1569.8 |
| 15°   | 1583.9 | 1572.4 | 1540.5 | 1537.9 | 1529.0 |
| 17.5° | 1553.2 | 1536.7 | 1499.7 | 1493.3 | 1480.6 |
| 20°   | 1516.3 | 1499.7 | 1456.3 | 1446.1 | 1429.6 |
| 22.5° | 1475.5 | 1456.3 | 1409.1 | 1392.6 | 1379.8 |
| 25°   | 1432.1 | 1409.1 | 1356.9 | 1335.2 | 1322.4 |
| 27.5° | 1387.5 | 1359.4 | 1304.6 | 1279.1 | 1261.2 |
| 30°   | 1340.3 | 1308.4 | 1248.5 | 1216.6 | 1196.2 |
| 32.5° | 1290.5 | 1253.6 | 1191.1 | 1152.8 | 1133.7 |
| 35°   | 1238.3 | 1197.5 | 1133.7 | 1090.3 | 1067.4 |
| 37.5° | 1183.4 | 1141.3 | 1071.2 | 1024.0 | 1001.1 |
| 40°   | 1124.8 | 1082.7 | 1010.0 | 956.4  | 933.5  |
| 42.5° | 1068.7 | 1024.0 | 947.5  | 892.7  | 868.4  |
| 45°   | 1010.0 | 962.8  | 886.3  | 823.8  | 800.9  |
| 47.5° | 950.1  | 901.6  | 822.5  | 757.5  | 732.0  |
| 50°   | 888.8  | 839.1  | 757.5  | 693.7  | 669.5  |
| 52.5° | 826.4  | 777.9  | 693.7  | 628.7  | 603.2  |
| 55°   | 765.1  | 714.1  | 631.2  | 564.9  | 540.7  |
| 57.5° | 705.2  | 651.7  | 570.0  | 502.4  | 484.6  |
| 60°   | 640.2  | 589.2  | 507.5  | 441.2  | 420.8  |
| 62.5° | 581.5  | 528.0  | 443.8  | 383.8  | 368.5  |
| 65°   | 520.3  | 465.5  | 383.8  | 329.0  | 313.7  |
| 67.5° | 456.5  | 404.3  | 327.7  | 279.3  | 261.4  |
| 70°   | 396.6  | 343.0  | 270.4  | 228.3  | 215.5  |
| 72.5° | 332.8  | 285.7  | 218.1  | 183.6  | 172.2  |
| 75°   | 276.7  | 229.5  | 169.6  | 140.3  | 132.6  |
| 77.5° | 218.1  | 177.3  | 126.2  | 105.8  | 103.3  |
| 80°   | 162.0  | 125.0  | 86.7   | 82.9   | 81.6   |
| 82.5° | 113.5  | 80.3   | 62.5   | 59.9   | 58.7   |
| 85°   | 68.9   | 43.4   | 39.5   | 37.0   | 37.0   |
| 87.5° | 29.3   | 19.1   | 17.9   | 16.6   | 17.9   |
| 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 | 20.71            | 22.27 | 21.07 | 22.59 | 22.90 | 18.74          | 20.30 | 19.10 | 20.62 | 20.93 |
|                 | 3H   | 22.48            | 23.89 | 22.85 | 24.21 | 24.57 | 19.99          | 21.40 | 20.37 | 21.73 | 22.09 |
|                 | 4H   | 23.14            | 24.46 | 23.54 | 24.81 | 25.19 | 20.37          | 21.69 | 20.77 | 22.04 | 22.42 |
|                 | 6H   | 23.61            | 24.84 | 24.03 | 25.20 | 25.59 | 20.63          | 21.85 | 21.04 | 22.22 | 22.61 |
|                 | 8H   | 23.76            | 24.93 | 24.19 | 25.32 | 25.72 | 20.72          | 21.89 | 21.15 | 22.28 | 22.68 |
|                 | 12H  | 23.86            | 24.98 | 24.29 | 25.36 | 25.79 | 20.79          | 21.90 | 21.22 | 22.28 | 22.71 |
| 4H              | 2H   | 21.04            | 22.37 | 21.44 | 22.71 | 23.09 | 19.43          | 20.75 | 19.83 | 21.10 | 21.48 |
|                 | 3H   | 23.01            | 24.11 | 23.42 | 24.51 | 24.91 | 20.87          | 21.97 | 21.28 | 22.37 | 22.77 |
|                 | 4H   | 23.79            | 24.78 | 24.22 | 25.20 | 25.64 | 21.32          | 22.31 | 21.75 | 22.73 | 23.16 |
|                 | 6H   | 24.39            | 25.25 | 24.84 | 25.69 | 26.15 | 21.67          | 22.53 | 22.12 | 22.97 | 23.43 |
|                 | 8H   | 24.58            | 25.39 | 25.04 | 25.83 | 26.30 | 21.79          | 22.60 | 22.26 | 23.05 | 23.51 |
|                 | 12H  | 24.72            | 25.44 | 25.20 | 25.92 | 26.39 | 21.89          | 22.62 | 22.37 | 23.09 | 23.56 |
| 8H              | 4H   | 23.89            | 24.69 | 24.35 | 25.14 | 25.60 | 21.63          | 22.44 | 22.10 | 22.89 | 23.35 |
|                 | 6H   | 24.56            | 25.23 | 25.05 | 25.72 | 26.19 | 22.06          | 22.73 | 22.56 | 23.22 | 23.70 |
|                 | 8H   | 24.80            | 25.40 | 25.31 | 25.91 | 26.40 | 22.24          | 22.84 | 22.76 | 23.35 | 23.84 |
|                 | 12H  | 25.00            | 25.53 | 25.50 | 26.02 | 26.58 | 22.40          | 22.93 | 22.91 | 23.42 | 23.99 |
| 12H             | 4H   | 23.88            | 24.60 | 24.36 | 25.08 | 25.55 | 21.67          | 22.40 | 22.15 | 22.87 | 23.34 |
|                 | 6H   | 24.55            | 25.15 | 25.06 | 25.66 | 26.14 | 22.12          | 22.72 | 22.63 | 23.23 | 23.71 |
|                 | 8H   | 24.83            | 25.36 | 25.34 | 25.85 | 26.41 | 22.35          | 22.88 | 22.86 | 23.37 | 23.93 |