

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: P1060650

Luminaire Tested: S124RDR-H1020D840-X4F0-XX-UDD-WVL-W

Issue Date: 8/7/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1060650  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2406-143-73)  
Test Lab: INNOVATION CENTER  
Issue Date: 8/7/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124RDR-H1020D840-X4F0-XX-UDD-WVL-W  
Description: DEFINE 4 WHITE REGRESSED DIRECT RECESSED HOUSING WITH WHITE STRAIGHT BLADE LOUVER WITH DIFFUSER  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: -

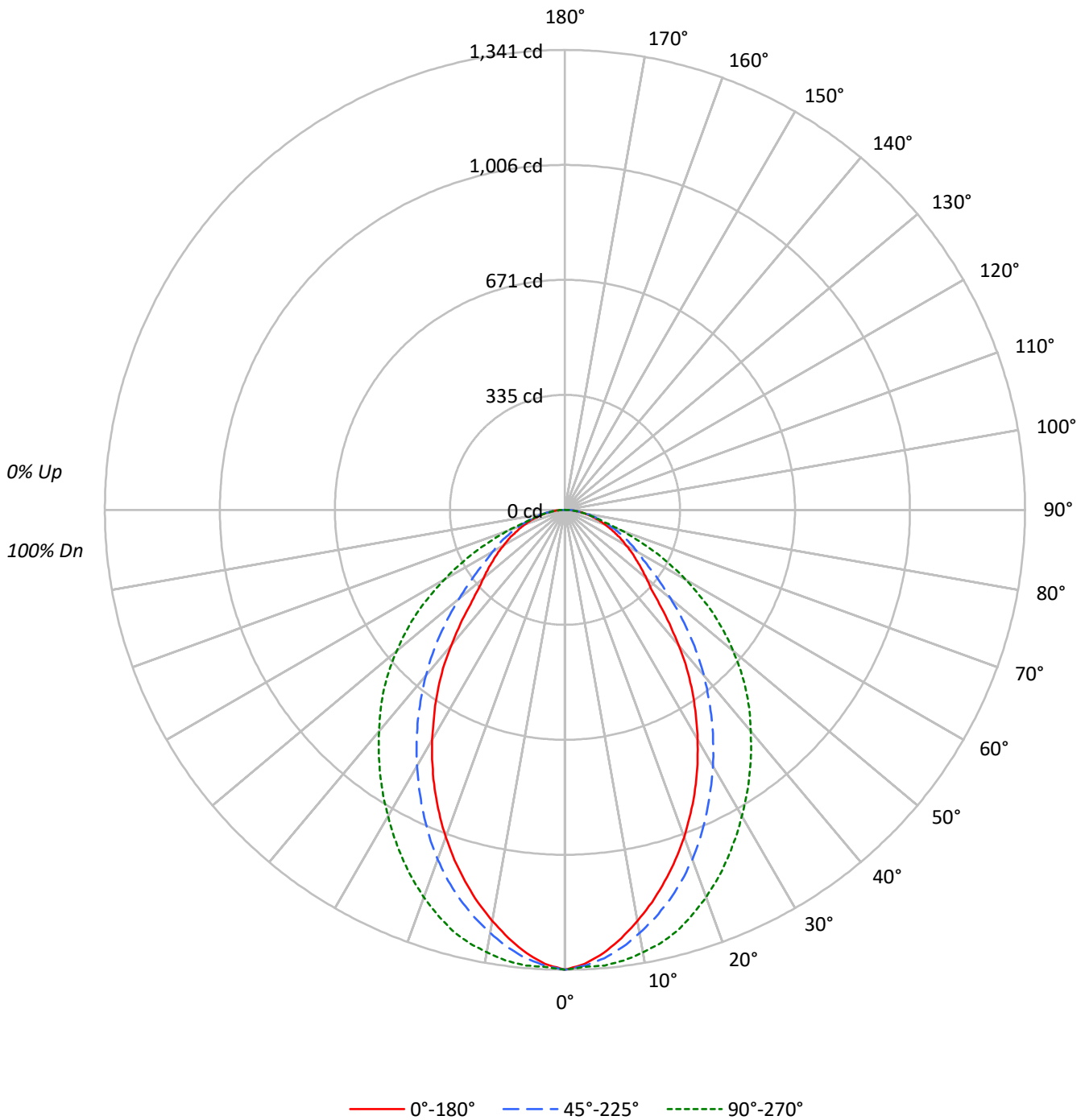
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2460.2 lumens  
Efficiency: N/A  
Efficacy: 78.9 lumens/watt  
Spacing Criteria (0/90/45): 0.93 / 1.15 / 1.11  
Luminous Opening: Rectangular (W 0.31' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 31.2  
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  | 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   | 110 | 106 | 102 | 99  | 108 | 104 | 100 | 97  | 100 | 97  | 94  | 96  | 93  | 91  | 92  | 90  | 89  | 87  |    |    |    |   |
| 2   | 101 | 94  | 88  | 83  | 99  | 92  | 87  | 82  | 89  | 84  | 80  | 86  | 82  | 78  | 83  | 80  | 77  | 75  |    |    |    |   |
| 3   | 94  | 84  | 77  | 71  | 91  | 83  | 76  | 70  | 80  | 74  | 69  | 77  | 72  | 68  | 75  | 70  | 67  | 65  |    |    |    |   |
| 4   | 86  | 76  | 68  | 62  | 84  | 74  | 67  | 61  | 72  | 66  | 60  | 70  | 64  | 60  | 68  | 63  | 59  | 57  |    |    |    |   |
| 5   | 80  | 68  | 60  | 54  | 78  | 67  | 60  | 54  | 65  | 59  | 53  | 63  | 58  | 53  | 62  | 56  | 52  | 50  |    |    |    |   |
| 6   | 75  | 62  | 54  | 48  | 73  | 61  | 54  | 48  | 60  | 53  | 48  | 58  | 52  | 47  | 57  | 51  | 47  | 45  |    |    |    |   |
| 7   | 70  | 57  | 49  | 43  | 68  | 56  | 49  | 43  | 55  | 48  | 43  | 53  | 47  | 43  | 52  | 47  | 42  | 40  |    |    |    |   |
| 8   | 65  | 53  | 45  | 39  | 64  | 52  | 44  | 39  | 51  | 44  | 39  | 49  | 43  | 39  | 48  | 43  | 38  | 37  |    |    |    |   |
| 9   | 61  | 49  | 41  | 36  | 60  | 48  | 41  | 36  | 47  | 40  | 35  | 46  | 40  | 35  | 45  | 39  | 35  | 33  |    |    |    |   |
| 10  | 58  | 45  | 38  | 33  | 56  | 45  | 38  | 33  | 44  | 37  | 33  | 43  | 37  | 32  | 42  | 36  | 32  | 31  |    |    |    |   |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 11545 | 11545 | 11545 |
| 5°  | 11210 | 11344 | 11528 |
| 10° | 10644 | 10955 | 11454 |
| 15° | 10006 | 10493 | 11318 |
| 20° | 9307  | 9938  | 11014 |
| 25° | 8534  | 9278  | 10653 |
| 30° | 7692  | 8577  | 10253 |
| 35° | 6810  | 7845  | 9866  |
| 40° | 5788  | 7082  | 9469  |
| 45° | 4740  | 6257  | 9103  |
| 50° | 4149  | 5372  | 8567  |
| 55° | 3812  | 4632  | 7927  |
| 60° | 3536  | 4168  | 6989  |
| 65° | 3313  | 3916  | 5850  |
| 70° | 3107  | 3585  | 4391  |
| 75° | 2921  | 3277  | 3197  |
| 80° | 2708  | 3000  | 2708  |
| 85° | 2460  | 2934  | 2342  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 45°  
 Luminance: 9103 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 123.9  | 5.0       |
| 10°-20°   | 333.4  | 13.6      |
| 20°-30°   | 455.7  | 18.5      |
| 30°-40°   | 478.9  | 19.5      |
| 40°-50°   | 415.6  | 16.9      |
| 50°-60°   | 313.5  | 12.7      |
| 60°-70°   | 203.2  | 8.3       |
| 70°-80°   | 104.3  | 4.2       |
| 80°-90°   | 31.6   | 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°    | 913.0  | 37.1      |
| 0°-40°    | 1391.9 | 56.6      |
| 0°-60°    | 2121.0 | 86.2      |
| 0°-90°    | 2460.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2460.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1341 | 1341  | 1341 | 1341  | 1341 |      |
| 5°  | 1297 | 1315  | 1312 | 1323  | 1334 | 121  |
| 15° | 1122 | 1150  | 1177 | 1230  | 1270 | 315  |
| 25° | 898  | 930   | 976  | 1051  | 1121 | 412  |
| 35° | 648  | 683   | 746  | 846   | 938  | 403  |
| 45° | 389  | 426   | 514  | 642   | 748  | 306  |
| 55° | 254  | 261   | 308  | 438   | 528  | 229  |
| 65° | 163  | 166   | 192  | 233   | 287  | 162  |
| 75° | 88   | 98    | 98   | 100   | 96   | 93   |
| 85° | 25   | 31    | 30   | 28    | 24   | 28   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1340.7 | 1340.7 | 1340.7 | 1340.7 | 1340.7 |
| 2.5°  | 1325.3 | 1341.9 | 1330.1 | 1332.4 | 1333.6 |
| 5°    | 1296.8 | 1314.6 | 1312.3 | 1322.9 | 1333.6 |
| 7.5°  | 1260.1 | 1281.4 | 1286.2 | 1307.5 | 1325.3 |
| 10°   | 1217.3 | 1241.1 | 1252.9 | 1287.4 | 1309.9 |
| 12.5° | 1172.3 | 1196.0 | 1217.3 | 1261.3 | 1293.3 |
| 15°   | 1122.4 | 1149.7 | 1177.0 | 1230.4 | 1269.6 |
| 17.5° | 1070.2 | 1098.7 | 1133.1 | 1191.2 | 1237.5 |
| 20°   | 1015.6 | 1044.1 | 1084.5 | 1147.3 | 1201.9 |
| 22.5° | 957.5  | 989.5  | 1032.3 | 1099.9 | 1164.0 |
| 25°   | 898.2  | 930.2  | 976.5  | 1051.2 | 1121.2 |
| 27.5° | 836.5  | 869.7  | 919.5  | 1002.6 | 1077.3 |
| 30°   | 773.6  | 809.2  | 862.6  | 950.4  | 1031.1 |
| 32.5° | 709.5  | 747.5  | 804.4  | 898.2  | 986.0  |
| 35°   | 647.8  | 683.4  | 746.3  | 846.0  | 938.5  |
| 37.5° | 583.8  | 619.4  | 687.0  | 795.0  | 891.1  |
| 40°   | 514.9  | 554.1  | 630.0  | 741.6  | 842.4  |
| 42.5° | 450.9  | 490.0  | 571.9  | 690.5  | 796.1  |
| 45°   | 389.2  | 426.0  | 513.8  | 641.9  | 747.5  |
| 47.5° | 341.7  | 367.8  | 455.6  | 594.4  | 695.3  |
| 50°   | 309.7  | 321.5  | 401.0  | 542.2  | 639.5  |
| 52.5° | 281.2  | 290.7  | 351.2  | 490.0  | 584.9  |
| 55°   | 253.9  | 261.0  | 308.5  | 437.8  | 528.0  |
| 57.5° | 230.2  | 233.7  | 270.5  | 385.6  | 466.3  |
| 60°   | 205.3  | 210.0  | 242.0  | 332.2  | 405.8  |
| 62.5° | 185.1  | 187.5  | 217.1  | 281.2  | 345.3  |
| 65°   | 162.6  | 166.1  | 192.2  | 232.6  | 287.1  |
| 67.5° | 142.4  | 148.3  | 166.1  | 189.8  | 226.6  |
| 70°   | 123.4  | 131.7  | 142.4  | 154.2  | 174.4  |
| 72.5° | 105.6  | 115.1  | 121.0  | 125.8  | 122.2  |
| 75°   | 87.8   | 98.5   | 98.5   | 99.7   | 96.1   |
| 77.5° | 71.2   | 80.7   | 79.5   | 78.3   | 73.6   |
| 80°   | 54.6   | 62.9   | 60.5   | 59.3   | 54.6   |
| 82.5° | 40.3   | 46.3   | 43.9   | 42.7   | 36.8   |
| 85°   | 24.9   | 30.8   | 29.7   | 28.5   | 23.7   |
| 87.5° | 11.9   | 17.8   | 16.6   | 15.4   | 10.7   |
| 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 | 15.00            | 16.49 | 15.37 | 16.80 | 17.12 | 18.74          | 20.23 | 19.10 | 20.54 | 20.85 |
|                 | 3H   | 16.67            | 18.00 | 17.05 | 18.33 | 18.69 | 19.87          | 21.20 | 20.24 | 21.53 | 21.89 |
|                 | 4H   | 17.34            | 18.58 | 17.74 | 18.93 | 19.31 | 20.16          | 21.41 | 20.56 | 21.76 | 22.14 |
|                 | 6H   | 17.84            | 19.00 | 18.26 | 19.36 | 19.76 | 20.36          | 21.51 | 20.77 | 21.88 | 22.27 |
|                 | 8H   | 18.02            | 19.12 | 18.45 | 19.51 | 19.91 | 20.42          | 21.51 | 20.84 | 21.90 | 22.31 |
|                 | 12H  | 18.14            | 19.19 | 18.57 | 19.57 | 20.00 | 20.45          | 21.50 | 20.88 | 21.88 | 22.31 |
| 4H              | 2H   | 15.79            | 17.04 | 16.19 | 17.39 | 17.77 | 18.91          | 20.15 | 19.31 | 20.50 | 20.88 |
|                 | 3H   | 17.67            | 18.70 | 18.08 | 19.10 | 19.50 | 20.24          | 21.27 | 20.65 | 21.67 | 22.07 |
|                 | 4H   | 18.47            | 19.40 | 18.90 | 19.82 | 20.26 | 20.65          | 21.58 | 21.09 | 22.00 | 22.44 |
|                 | 6H   | 19.11            | 19.92 | 19.57 | 20.37 | 20.83 | 20.97          | 21.78 | 21.43 | 22.23 | 22.69 |
|                 | 8H   | 19.34            | 20.09 | 19.80 | 20.54 | 21.01 | 21.07          | 21.83 | 21.53 | 22.27 | 22.74 |
|                 | 12H  | 19.50            | 20.18 | 19.98 | 20.66 | 21.13 | 21.14          | 21.82 | 21.62 | 22.30 | 22.77 |
| 8H              | 4H   | 18.82            | 19.58 | 19.28 | 20.02 | 20.49 | 20.79          | 21.54 | 21.25 | 21.99 | 22.46 |
|                 | 6H   | 19.61            | 20.23 | 20.11 | 20.73 | 21.20 | 21.21          | 21.83 | 21.70 | 22.32 | 22.80 |
|                 | 8H   | 19.93            | 20.49 | 20.44 | 21.00 | 21.49 | 21.36          | 21.92 | 21.88 | 22.43 | 22.92 |
|                 | 12H  | 20.19            | 20.69 | 20.70 | 21.18 | 21.74 | 21.50          | 22.00 | 22.01 | 22.49 | 23.06 |
| 12H             | 4H   | 18.85            | 19.52 | 19.33 | 20.00 | 20.47 | 20.79          | 21.47 | 21.27 | 21.95 | 22.42 |
|                 | 6H   | 19.67            | 20.23 | 20.18 | 20.74 | 21.23 | 21.23          | 21.79 | 21.74 | 22.30 | 22.79 |
|                 | 8H   | 20.06            | 20.55 | 20.57 | 21.04 | 21.61 | 21.44          | 21.93 | 21.95 | 22.42 | 22.99 |