

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: P242550

Luminaire Tested: S123RDRP-S560D935-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242550  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-25)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123RDRP-S560D935-X4F0-XX-UDD-F-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

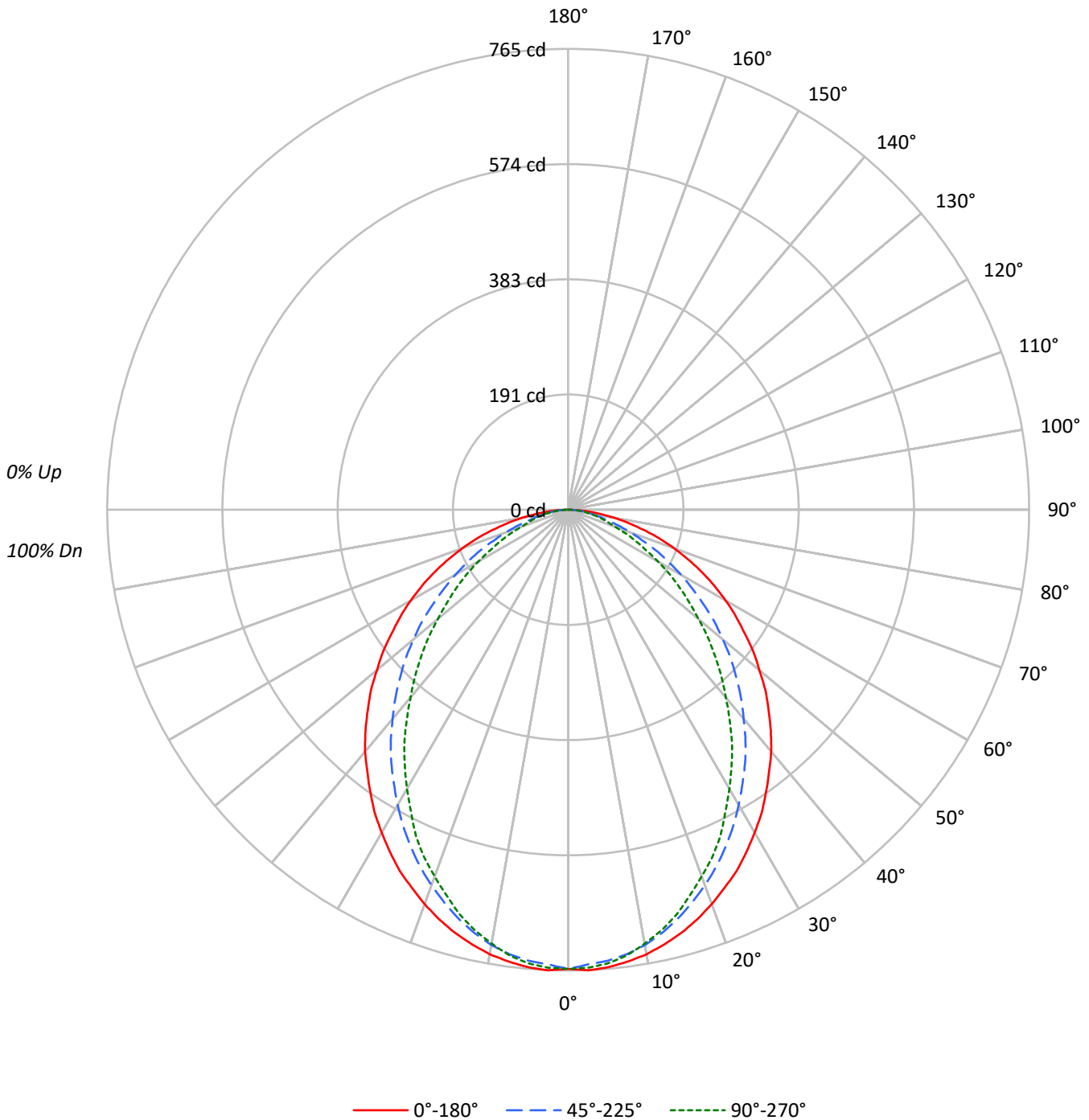
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1722.1 lumens  
Efficiency: N/A  
Efficacy: 91.6 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22  
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 18.8  
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 | 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  | 93  | 90  | 91  | 89  | 88  |     |    |    |    | 86 |     |   |  |   |
| 2   | 100 | 93  | 86  | 81  | 98  | 91  | 85  | 80  | 87  | 83  | 78  | 84  | 80  | 77  | 81  | 78  | 75  |     |    |    |    | 73 |     |   |  |   |
| 3   | 92  | 82  | 75  | 68  | 90  | 81  | 74  | 68  | 78  | 72  | 67  | 75  | 70  | 66  | 73  | 68  | 64  |     |    |    |    | 62 |     |   |  |   |
| 4   | 85  | 73  | 65  | 59  | 83  | 72  | 64  | 58  | 70  | 63  | 58  | 67  | 62  | 57  | 65  | 60  | 56  |     |    |    |    | 54 |     |   |  |   |
| 5   | 78  | 66  | 57  | 51  | 76  | 65  | 57  | 51  | 63  | 56  | 50  | 61  | 55  | 50  | 59  | 54  | 49  |     |    |    |    | 47 |     |   |  |   |
| 6   | 73  | 60  | 51  | 45  | 71  | 59  | 51  | 45  | 57  | 50  | 45  | 55  | 49  | 44  | 54  | 48  | 44  |     |    |    |    | 42 |     |   |  |   |
| 7   | 67  | 54  | 46  | 40  | 66  | 54  | 46  | 40  | 52  | 45  | 40  | 51  | 44  | 39  | 49  | 44  | 39  |     |    |    |    | 37 |     |   |  |   |
| 8   | 63  | 50  | 42  | 36  | 61  | 49  | 41  | 36  | 48  | 41  | 36  | 47  | 40  | 36  | 46  | 40  | 35  |     |    |    |    | 34 |     |   |  |   |
| 9   | 59  | 46  | 38  | 33  | 58  | 45  | 38  | 33  | 44  | 37  | 32  | 43  | 37  | 32  | 42  | 36  | 32  |     |    |    |    | 30 |     |   |  |   |
| 10  | 55  | 43  | 35  | 30  | 54  | 42  | 35  | 30  | 41  | 34  | 30  | 40  | 34  | 29  | 39  | 34  | 29  |     |    |    |    | 28 |     |   |  |   |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 9240 | 9240 | 9240 |
| 5°  | 9275 | 9148 | 9200 |
| 10° | 9223 | 9032 | 9002 |
| 15° | 9123 | 8821 | 8728 |
| 20° | 8987 | 8557 | 8357 |
| 25° | 8847 | 8260 | 7995 |
| 30° | 8661 | 7918 | 7485 |
| 35° | 8471 | 7575 | 7017 |
| 40° | 8296 | 7171 | 6437 |
| 45° | 8065 | 6771 | 5914 |
| 50° | 7811 | 6319 | 5327 |
| 55° | 7551 | 5801 | 4782 |
| 60° | 7314 | 5246 | 4182 |
| 65° | 7004 | 4646 | 3582 |
| 70° | 6617 | 3898 | 2892 |
| 75° | 6051 | 3068 | 2721 |
| 80° | 5396 | 2715 | 2506 |
| 85° | 4562 | 2406 | 2239 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 8065 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 71.7   | 4.2       |
| 10°-20°   | 199.3  | 11.6      |
| 20°-30°   | 287.0  | 16.7      |
| 30°-40°   | 323.2  | 18.8      |
| 40°-50°   | 309.2  | 18.0      |
| 50°-60°   | 253.1  | 14.7      |
| 60°-70°   | 170.6  | 9.9       |
| 70°-80°   | 85.6   | 5.0       |
| 80°-90°   | 22.4   | 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°    | 558.0  | 32.4      |
| 0°-40°    | 881.2  | 51.2      |
| 0°-60°    | 1443.5 | 83.8      |
| 0°-90°    | 1722.1 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1722.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 762 | 762   | 762 | 762   | 762 |      |
| 5°  | 762 | 759   | 752 | 757   | 756 | 72   |
| 15° | 727 | 720   | 703 | 700   | 696 | 205  |
| 25° | 662 | 646   | 618 | 605   | 598 | 304  |
| 35° | 572 | 550   | 512 | 485   | 474 | 358  |
| 45° | 470 | 443   | 395 | 360   | 345 | 363  |
| 55° | 357 | 327   | 274 | 239   | 226 | 320  |
| 65° | 244 | 210   | 162 | 132   | 125 | 242  |
| 75° | 129 | 100   | 66  | 59    | 58  | 138  |
| 85° | 33  | 19    | 17  | 16    | 16  | 38   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 762.3 | 762.3 | 762.3 | 762.3 | 762.3 |
| 2.5°  | 765.4 | 762.9 | 755.5 | 762.3 | 761.0 |
| 5°    | 762.3 | 759.2 | 751.8 | 757.3 | 756.1 |
| 7.5°  | 756.7 | 753.6 | 744.3 | 748.0 | 746.2 |
| 10°   | 749.3 | 745.0 | 733.8 | 734.4 | 731.4 |
| 12.5° | 738.8 | 733.8 | 719.6 | 719.0 | 715.3 |
| 15°   | 727.0 | 720.2 | 702.9 | 699.8 | 695.5 |
| 17.5° | 712.8 | 705.4 | 683.8 | 677.6 | 671.4 |
| 20°   | 696.7 | 686.8 | 663.4 | 655.3 | 647.9 |
| 22.5° | 678.8 | 667.1 | 641.7 | 631.2 | 624.4 |
| 25°   | 661.5 | 646.0 | 617.6 | 604.6 | 597.8 |
| 27.5° | 640.5 | 623.8 | 592.9 | 575.6 | 565.1 |
| 30°   | 618.8 | 600.3 | 565.7 | 544.7 | 534.8 |
| 32.5° | 597.2 | 575.6 | 538.5 | 515.0 | 504.5 |
| 35°   | 572.5 | 550.2 | 511.9 | 485.3 | 474.2 |
| 37.5° | 547.7 | 523.6 | 483.4 | 453.8 | 440.2 |
| 40°   | 524.3 | 497.0 | 453.2 | 421.0 | 406.8 |
| 42.5° | 497.7 | 470.5 | 424.7 | 388.9 | 376.5 |
| 45°   | 470.5 | 442.6 | 395.0 | 359.8 | 345.0 |
| 47.5° | 443.9 | 413.0 | 366.0 | 327.7 | 314.7 |
| 50°   | 414.2 | 385.2 | 335.1 | 296.7 | 282.5 |
| 52.5° | 387.6 | 355.5 | 306.0 | 265.8 | 253.5 |
| 55°   | 357.3 | 327.0 | 274.5 | 238.6 | 226.3 |
| 57.5° | 330.1 | 297.4 | 244.2 | 210.2 | 199.7 |
| 60°   | 301.7 | 267.7 | 216.4 | 183.0 | 172.5 |
| 62.5° | 273.3 | 239.3 | 187.9 | 157.0 | 145.9 |
| 65°   | 244.2 | 210.2 | 162.0 | 131.7 | 124.9 |
| 67.5° | 215.1 | 180.5 | 133.5 | 110.7 | 103.2 |
| 70°   | 186.7 | 153.3 | 110.0 | 88.4  | 81.6  |
| 72.5° | 158.3 | 125.5 | 87.2  | 70.5  | 68.6  |
| 75°   | 129.2 | 99.5  | 65.5  | 59.3  | 58.1  |
| 77.5° | 102.6 | 75.4  | 51.3  | 47.6  | 46.4  |
| 80°   | 77.3  | 51.9  | 38.9  | 37.1  | 35.9  |
| 82.5° | 53.2  | 32.1  | 27.8  | 26.0  | 26.0  |
| 85°   | 32.8  | 19.2  | 17.3  | 16.1  | 16.1  |
| 87.5° | 14.8  | 8.0   | 8.0   | 7.4   | 6.8   |
| 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 | 19.17            | 20.73 | 19.54 | 21.04 | 21.36 | 16.54          | 18.10 | 16.91 | 18.41 | 18.73 |
|                 | 3H   | 20.95            | 22.35 | 21.33 | 22.68 | 23.04 | 17.66          | 19.05 | 18.03 | 19.38 | 19.74 |
|                 | 4H   | 21.61            | 22.92 | 22.01 | 23.27 | 23.65 | 18.05          | 19.36 | 18.45 | 19.71 | 20.09 |
|                 | 6H   | 22.09            | 23.30 | 22.50 | 23.67 | 24.06 | 18.37          | 19.58 | 18.78 | 19.95 | 20.34 |
|                 | 8H   | 22.24            | 23.40 | 22.67 | 23.79 | 24.19 | 18.48          | 19.64 | 18.91 | 20.03 | 20.43 |
|                 | 12H  | 22.34            | 23.45 | 22.77 | 23.83 | 24.26 | 18.56          | 19.66 | 18.99 | 20.04 | 20.47 |
| 4H              | 2H   | 19.43            | 20.75 | 19.83 | 21.09 | 21.47 | 17.26          | 18.57 | 17.66 | 18.92 | 19.30 |
|                 | 3H   | 21.39            | 22.49 | 21.81 | 22.89 | 23.29 | 18.53          | 19.63 | 18.94 | 20.03 | 20.43 |
|                 | 4H   | 22.17            | 23.15 | 22.60 | 23.56 | 24.00 | 19.01          | 20.00 | 19.45 | 20.41 | 20.85 |
|                 | 6H   | 22.76            | 23.62 | 23.22 | 24.06 | 24.52 | 19.43          | 20.29 | 19.89 | 20.73 | 21.19 |
|                 | 8H   | 22.95            | 23.75 | 23.42 | 24.20 | 24.66 | 19.58          | 20.38 | 20.04 | 20.82 | 21.29 |
|                 | 12H  | 23.10            | 23.82 | 23.58 | 24.29 | 24.76 | 19.69          | 20.41 | 20.17 | 20.88 | 21.35 |
| 8H              | 4H   | 22.22            | 23.02 | 22.68 | 23.46 | 23.93 | 19.34          | 20.14 | 19.80 | 20.58 | 21.05 |
|                 | 6H   | 22.88            | 23.54 | 23.38 | 24.03 | 24.51 | 19.85          | 20.51 | 20.34 | 21.00 | 21.48 |
|                 | 8H   | 23.11            | 23.71 | 23.63 | 24.22 | 24.71 | 20.05          | 20.65 | 20.57 | 21.16 | 21.64 |
|                 | 12H  | 23.32            | 23.84 | 23.83 | 24.33 | 24.90 | 20.22          | 20.75 | 20.73 | 21.24 | 21.81 |
| 12H             | 4H   | 22.21            | 22.93 | 22.69 | 23.40 | 23.87 | 19.38          | 20.09 | 19.86 | 20.57 | 21.04 |
|                 | 6H   | 22.87            | 23.46 | 23.38 | 23.97 | 24.46 | 19.91          | 20.50 | 20.42 | 21.01 | 21.50 |
|                 | 8H   | 23.14            | 23.66 | 23.65 | 24.16 | 24.72 | 20.17          | 20.69 | 20.67 | 21.18 | 21.75 |