

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: NEO-RAY

Report Number: P242437

Luminaire Tested: **S123DR-S560D840-X4F0-XX-UDD-F-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242437  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-11)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DR-S560D840-X4F0-XX-UDD-F-W  
Description: DEFINE 3 DIRECT RECESSED WITH SATIN FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2194.7 lumens  
Efficiency: N/A  
Efficacy: 116.7 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.3  
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')  
CIE Type: Direct

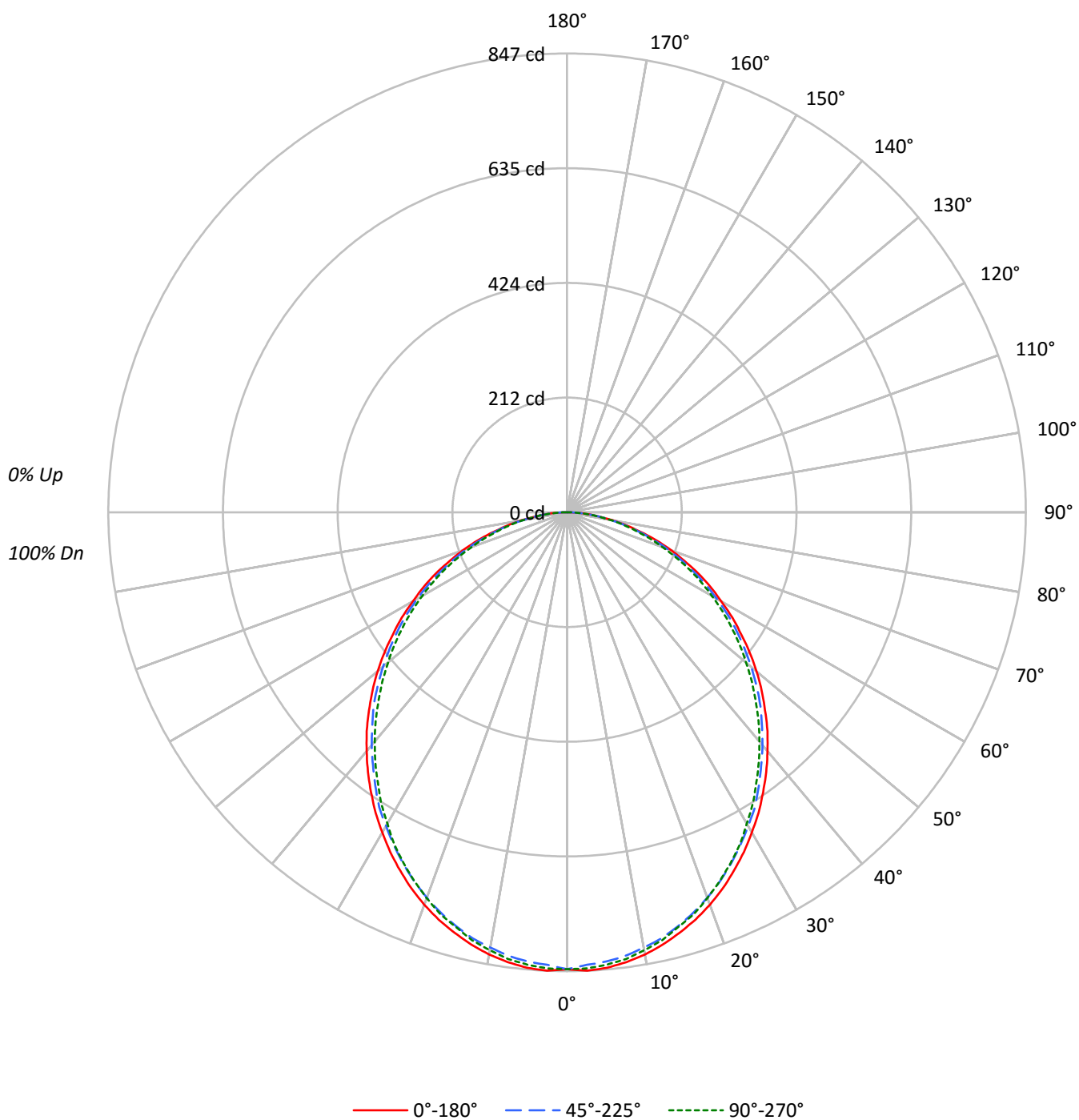
Input Watts (W): 18.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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  |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 50  | 30  | 10  |
| RCR |     |     |     |     |     |     |     |     |  |     |     |     |  |     |     |     |  |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 |  | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 | 102 | 102 |
| 1   | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 95  |  | 98  | 94  | 92  |  | 94  | 91  | 89  |  | 90  | 88  | 86  |
| 2   | 99  | 91  | 84  | 79  | 97  | 89  | 83  | 78  |  | 86  | 80  | 76  |  | 82  | 78  | 74  |  | 79  | 76  | 72  |
| 3   | 91  | 80  | 72  | 66  | 88  | 79  | 71  | 65  |  | 76  | 69  | 64  |  | 73  | 67  | 63  |  | 70  | 66  | 62  |
| 4   | 83  | 71  | 62  | 56  | 81  | 70  | 62  | 55  |  | 67  | 60  | 55  |  | 65  | 59  | 54  |  | 63  | 58  | 53  |
| 5   | 76  | 64  | 55  | 48  | 74  | 63  | 54  | 48  |  | 60  | 53  | 47  |  | 58  | 52  | 47  |  | 57  | 51  | 46  |
| 6   | 71  | 57  | 49  | 42  | 69  | 56  | 48  | 42  |  | 55  | 47  | 42  |  | 53  | 46  | 41  |  | 51  | 46  | 41  |
| 7   | 66  | 52  | 43  | 37  | 64  | 51  | 43  | 37  |  | 50  | 42  | 37  |  | 48  | 42  | 37  |  | 47  | 41  | 36  |
| 8   | 61  | 48  | 39  | 33  | 60  | 47  | 39  | 33  |  | 46  | 38  | 33  |  | 44  | 38  | 33  |  | 43  | 37  | 33  |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 35  | 30  |  | 42  | 35  | 30  |  | 41  | 34  | 30  |  | 40  | 34  | 30  |
| 10  | 54  | 40  | 33  | 27  | 52  | 40  | 32  | 27  |  | 39  | 32  | 27  |  | 38  | 32  | 27  |  | 37  | 31  | 27  |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 10222 | 10222 | 10222 |
| 5°  | 10269 | 10128 | 10199 |
| 10° | 10201 | 10040 | 10103 |
| 15° | 10082 | 9927  | 9945  |
| 20° | 9943  | 9765  | 9774  |
| 25° | 9757  | 9572  | 9552  |
| 30° | 9550  | 9358  | 9287  |
| 35° | 9334  | 9131  | 9013  |
| 40° | 9109  | 8880  | 8742  |
| 45° | 8862  | 8652  | 8439  |
| 50° | 8614  | 8369  | 8135  |
| 55° | 8290  | 8075  | 7830  |
| 60° | 7964  | 7733  | 7488  |
| 65° | 7675  | 7362  | 7133  |
| 70° | 7247  | 6939  | 6631  |
| 75° | 6622  | 6383  | 6112  |
| 80° | 5975  | 5717  | 5668  |
| 85° | 5243  | 5048  | 4840  |

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 79.5   | 3.6       |
| 10°-20°   | 224.5  | 10.2      |
| 20°-30°   | 331.5  | 15.1      |
| 30°-40°   | 387.2  | 17.6      |
| 40°-50°   | 389.3  | 17.7      |
| 50°-60°   | 341.9  | 15.6      |
| 60°-70°   | 254.7  | 11.6      |
| 70°-80°   | 144.9  | 6.6       |
| 80°-90°   | 41.2   | 1.9       |
| 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°    | 635.5  | 29.0      |
| 0°-40°    | 1022.7 | 46.6      |
| 0°-60°    | 1753.9 | 79.9      |
| 0°-90°    | 2194.7 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2194.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 843 | 843   | 843 | 843   | 843 |      |
| 5°  | 844 | 840   | 832 | 840   | 838 | 80   |
| 15° | 803 | 800   | 791 | 797   | 792 | 227  |
| 25° | 730 | 725   | 716 | 716   | 714 | 336  |
| 35° | 631 | 626   | 617 | 613   | 609 | 395  |
| 45° | 517 | 514   | 505 | 496   | 492 | 399  |
| 55° | 392 | 392   | 382 | 374   | 370 | 351  |
| 65° | 268 | 264   | 257 | 251   | 249 | 264  |
| 75° | 141 | 138   | 136 | 133   | 130 | 151  |
| 85° | 38  | 36    | 36  | 35    | 35  | 43   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 843.3 | 843.3 | 843.3 | 843.3 | 843.3 |
| 2.5°  | 846.9 | 844.0 | 836.1 | 843.3 | 842.6 |
| 5°    | 844.0 | 840.4 | 832.4 | 839.7 | 838.2 |
| 7.5°  | 837.5 | 833.9 | 825.9 | 832.4 | 831.7 |
| 10°   | 828.8 | 825.2 | 815.7 | 822.3 | 820.8 |
| 12.5° | 817.2 | 814.3 | 805.6 | 809.9 | 809.2 |
| 15°   | 803.4 | 800.5 | 791.1 | 796.9 | 792.5 |
| 17.5° | 788.2 | 784.6 | 775.1 | 779.5 | 778.0 |
| 20°   | 770.8 | 766.4 | 757.0 | 759.9 | 757.7 |
| 22.5° | 751.2 | 746.9 | 737.4 | 739.6 | 736.7 |
| 25°   | 729.5 | 725.1 | 715.7 | 716.4 | 714.2 |
| 27.5° | 707.0 | 702.6 | 692.5 | 693.2 | 691.0 |
| 30°   | 682.3 | 678.7 | 668.6 | 668.6 | 663.5 |
| 32.5° | 657.7 | 652.6 | 645.3 | 640.3 | 638.1 |
| 35°   | 630.8 | 626.5 | 617.1 | 612.7 | 609.1 |
| 37.5° | 604.0 | 598.2 | 588.8 | 583.7 | 581.5 |
| 40°   | 575.7 | 571.4 | 561.2 | 555.4 | 552.5 |
| 42.5° | 547.5 | 542.4 | 532.2 | 526.4 | 523.5 |
| 45°   | 517.0 | 514.1 | 504.7 | 496.0 | 492.3 |
| 47.5° | 487.3 | 482.9 | 474.2 | 465.5 | 462.6 |
| 50°   | 456.8 | 453.2 | 443.8 | 435.8 | 431.4 |
| 52.5° | 424.9 | 422.7 | 412.6 | 406.1 | 401.7 |
| 55°   | 392.3 | 391.6 | 382.1 | 374.2 | 370.5 |
| 57.5° | 361.8 | 358.9 | 351.7 | 344.4 | 340.1 |
| 60°   | 328.5 | 327.7 | 319.0 | 312.5 | 308.9 |
| 62.5° | 298.7 | 296.6 | 287.9 | 281.3 | 279.2 |
| 65°   | 267.6 | 263.9 | 256.7 | 250.9 | 248.7 |
| 67.5° | 234.2 | 231.3 | 225.5 | 220.4 | 217.5 |
| 70°   | 204.5 | 200.1 | 195.8 | 190.7 | 187.1 |
| 72.5° | 173.3 | 170.4 | 165.3 | 161.0 | 159.5 |
| 75°   | 141.4 | 138.5 | 136.3 | 132.7 | 130.5 |
| 77.5° | 113.1 | 111.7 | 108.8 | 105.9 | 105.9 |
| 80°   | 85.6  | 83.4  | 81.9  | 81.2  | 81.2  |
| 82.5° | 58.7  | 58.7  | 58.7  | 57.3  | 56.6  |
| 85°   | 37.7  | 36.3  | 36.3  | 34.8  | 34.8  |
| 87.5° | 18.9  | 16.7  | 16.0  | 15.2  | 15.2  |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)