

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: P242690

Luminaire Tested: **S124DR-S1020D935-X4F0-XX-UDD-D-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242690  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-16)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DR-S1020D935-X4F0-XX-UDD-D-W  
Description: DEFINE 4 DIRECT RECESSED WITH SATIN DROP DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3342.9 lumens  
Efficiency: N/A  
Efficacy: 96.1 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.31' x L: 3.88' x H: 0.08')  
CIE Type: Direct

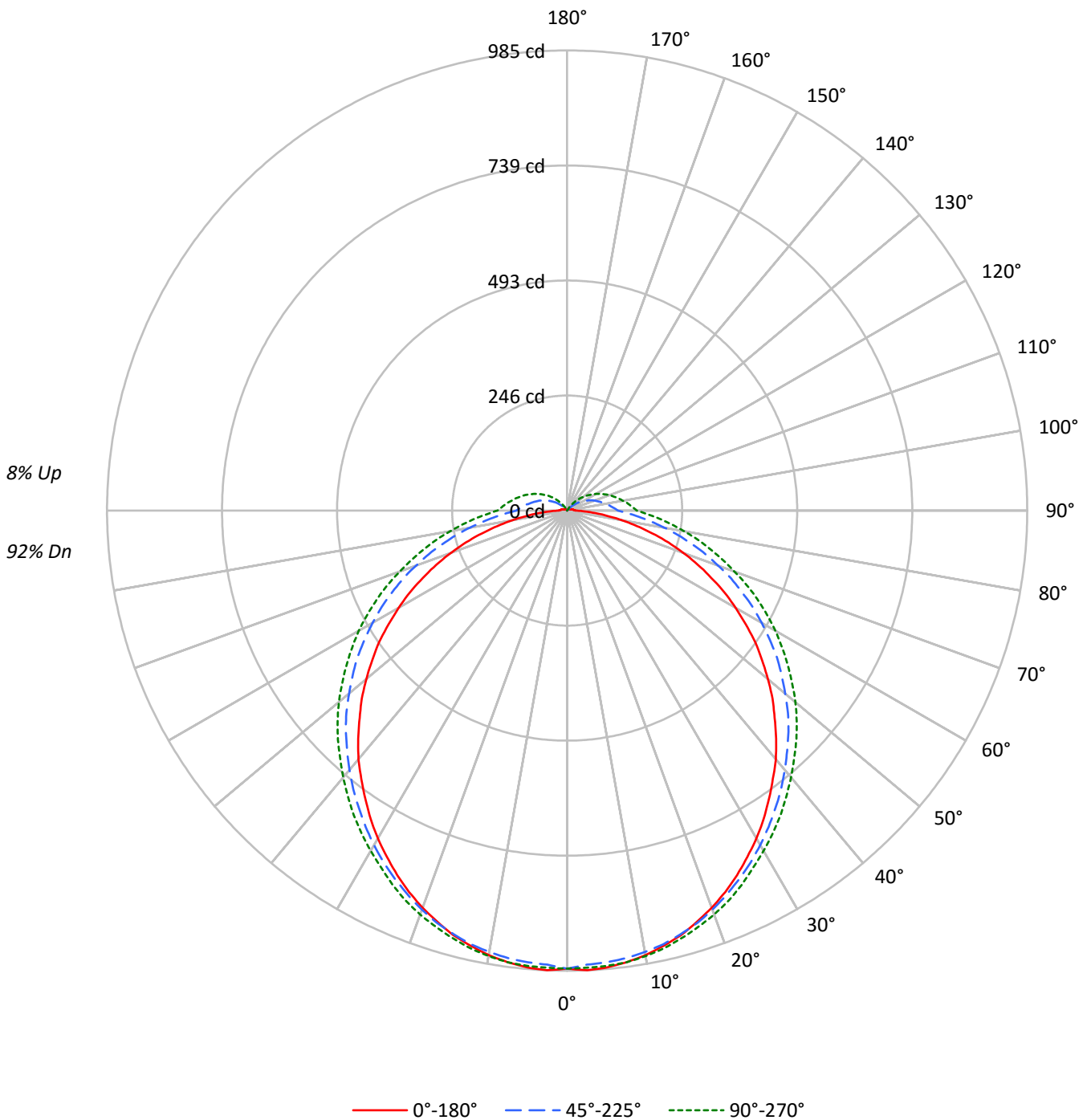
Input Watts (W): 34.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 | 0  |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50 | 30 | 10 | 0  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |
| 0   | 117 | 117 | 117 | 117 | 114 | 114 | 114 | 114 | 107 | 107 | 107 | 101 | 101 | 101 | 95 | 95 | 95 | 92 |
| 1   | 105 | 100 | 95  | 91  | 102 | 97  | 93  | 89  | 91  | 88  | 84  | 86  | 83  | 80  | 81 | 79 | 77 | 74 |
| 2   | 95  | 86  | 79  | 73  | 92  | 84  | 77  | 71  | 79  | 73  | 68  | 74  | 70  | 66  | 70 | 67 | 63 | 60 |
| 3   | 87  | 75  | 67  | 60  | 83  | 73  | 65  | 59  | 69  | 62  | 57  | 65  | 60  | 55  | 62 | 57 | 53 | 50 |
| 4   | 79  | 66  | 57  | 50  | 76  | 65  | 56  | 49  | 61  | 54  | 48  | 58  | 52  | 47  | 55 | 49 | 45 | 43 |
| 5   | 73  | 59  | 50  | 43  | 70  | 58  | 49  | 42  | 55  | 47  | 41  | 52  | 45  | 40  | 49 | 44 | 39 | 37 |
| 6   | 67  | 53  | 44  | 37  | 64  | 52  | 43  | 37  | 49  | 42  | 36  | 47  | 40  | 35  | 45 | 39 | 34 | 32 |
| 7   | 62  | 48  | 39  | 33  | 60  | 47  | 38  | 32  | 45  | 37  | 32  | 43  | 36  | 31  | 41 | 35 | 30 | 28 |
| 8   | 58  | 44  | 35  | 29  | 56  | 43  | 35  | 29  | 41  | 33  | 28  | 39  | 32  | 28  | 37 | 31 | 27 | 25 |
| 9   | 54  | 40  | 32  | 26  | 52  | 39  | 31  | 26  | 38  | 30  | 25  | 36  | 29  | 25  | 34 | 29 | 24 | 22 |
| 10  | 50  | 37  | 29  | 24  | 49  | 36  | 29  | 23  | 35  | 28  | 23  | 33  | 27  | 23  | 32 | 26 | 22 | 20 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 8716 | 8716 | 8716 |
| 5°  | 8742 | 8509 | 8530 |
| 10° | 8688 | 8361 | 8348 |
| 15° | 8610 | 8192 | 8139 |
| 20° | 8491 | 8006 | 7934 |
| 25° | 8359 | 7799 | 7710 |
| 30° | 8215 | 7593 | 7481 |
| 35° | 8052 | 7383 | 7279 |
| 40° | 7922 | 7181 | 7069 |
| 45° | 7728 | 6995 | 6887 |
| 50° | 7565 | 6781 | 6694 |
| 55° | 7396 | 6577 | 6469 |
| 60° | 7132 | 6319 | 6263 |
| 65° | 6844 | 6042 | 6009 |
| 70° | 6493 | 5727 | 5715 |
| 75° | 6006 | 5377 | 5443 |
| 80° | 5461 | 5032 | 5167 |
| 85° | 4765 | 4709 | 4979 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 92.9   | 2.8       |
| 10°-20°   | 266.2  | 8.0       |
| 20°-30°   | 402.5  | 12.0      |
| 30°-40°   | 486.9  | 14.6      |
| 40°-50°   | 514.8  | 15.4      |
| 50°-60°   | 484.5  | 14.5      |
| 60°-70°   | 402.0  | 12.0      |
| 70°-80°   | 282.1  | 8.4       |
| 80°-90°   | 159.1  | 4.8       |
| 90°-100°  | 94.7   | 2.8       |
| 100°-110° | 70.1   | 2.1       |
| 110°-120° | 47.1   | 1.4       |
| 120°-130° | 26.5   | 0.8       |
| 130°-140° | 11.5   | 0.3       |
| 140°-150° | 2.3    | 0.1       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 761.6  | 22.8      |
| 0°-40°    | 1248.5 | 37.3      |
| 0°-60°    | 2247.7 | 67.2      |
| 0°-90°    | 3090.8 | 92.5      |
| 90°-120°  | 211.9  | 6.3       |
| 90°-150°  | 252.1  | 7.5       |
| 90°-180°  | 252.0  | 7.5       |
| 0°-180°   | 3342.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0°   | 980 | 980   | 980 | 980   | 980 |      |
| 5°   | 982 | 978   | 971 | 979   | 978 | 93   |
| 15°  | 941 | 942   | 939 | 949   | 948 | 265  |
| 25°  | 861 | 867   | 871 | 883   | 884 | 397  |
| 35°  | 753 | 766   | 777 | 793   | 796 | 472  |
| 45°  | 628 | 649   | 670 | 688   | 694 | 485  |
| 55°  | 492 | 515   | 548 | 570   | 576 | 438  |
| 65°  | 340 | 376   | 413 | 440   | 449 | 337  |
| 75°  | 189 | 230   | 276 | 306   | 316 | 201  |
| 85°  | 58  | 104   | 154 | 187   | 198 | 61   |
| 90°  | 18  | 62    | 109 | 140   | 149 | 12   |
| 95°  | 14  | 50    | 96  | 125   | 135 | 11   |
| 105° | 10  | 32    | 72  | 100   | 109 | 11   |
| 115° | 7   | 16    | 52  | 76    | 83  | 7    |
| 125° | 4   | 3     | 31  | 52    | 58  | 4    |
| 135° | 2   | 2     | 10  | 27    | 34  | 2    |
| 145° | 1   | 0     | 0   | 7     | 11  | 1    |
| 155° | 0   | 0     | 0   | 0     | 0   | 0    |
| 165° | 0   | 0     | 0   | 0     | 0   | 0    |
| 175° | 0   | 0     | 0   | 0     | 0   | 0    |
| 180° | 0   | 0     | 0   | 0     | 0   | 0    |



TEST NUMBER: P242690

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|--------|-------|-------|-------|-------|-------|
| 0°     | 980.5 | 980.5 | 980.5 | 980.5 | 980.5 |
| 2.5°   | 984.9 | 981.6 | 972.8 | 980.5 | 979.4 |
| 5°     | 981.6 | 978.3 | 970.6 | 979.4 | 978.3 |
| 7.5°   | 975.0 | 972.8 | 966.2 | 976.1 | 975.0 |
| 10°    | 966.2 | 965.1 | 959.6 | 969.5 | 968.4 |
| 12.5°  | 954.1 | 954.1 | 950.9 | 959.6 | 959.6 |
| 15°    | 941.0 | 942.1 | 938.8 | 948.7 | 947.6 |
| 17.5°  | 923.4 | 926.7 | 925.6 | 935.5 | 934.4 |
| 20°    | 904.7 | 908.0 | 909.1 | 920.1 | 920.1 |
| 22.5°  | 883.9 | 888.3 | 890.5 | 901.4 | 903.6 |
| 25°    | 860.8 | 867.4 | 870.7 | 882.8 | 883.9 |
| 27.5°  | 835.6 | 845.4 | 849.8 | 860.8 | 861.9 |
| 30°    | 810.3 | 819.1 | 826.8 | 838.9 | 841.1 |
| 32.5°  | 782.9 | 793.8 | 802.6 | 816.9 | 819.1 |
| 35°    | 753.2 | 766.4 | 777.4 | 792.7 | 796.0 |
| 37.5°  | 723.6 | 738.9 | 752.1 | 767.5 | 770.8 |
| 40°    | 695.0 | 709.3 | 724.7 | 741.1 | 745.5 |
| 42.5°  | 662.1 | 678.6 | 697.2 | 715.9 | 719.2 |
| 45°    | 628.0 | 648.9 | 669.8 | 688.4 | 693.9 |
| 47.5°  | 596.2 | 617.1 | 641.2 | 659.9 | 666.5 |
| 50°    | 561.1 | 585.2 | 609.4 | 631.3 | 637.9 |
| 52.5°  | 525.9 | 550.1 | 578.6 | 600.6 | 607.2 |
| 55°    | 491.9 | 515.0 | 547.9 | 569.9 | 576.4 |
| 57.5°  | 453.5 | 482.0 | 513.9 | 540.2 | 545.7 |
| 60°    | 416.1 | 444.7 | 480.9 | 506.2 | 515.0 |
| 62.5°  | 379.9 | 411.7 | 448.0 | 473.2 | 482.0 |
| 65°    | 340.4 | 375.5 | 412.8 | 440.3 | 449.1 |
| 67.5°  | 303.0 | 340.4 | 379.9 | 407.4 | 416.1 |
| 70°    | 264.6 | 301.9 | 343.7 | 373.3 | 381.0 |
| 72.5°  | 227.3 | 265.7 | 310.7 | 339.3 | 348.1 |
| 75°    | 188.9 | 229.5 | 275.6 | 306.3 | 316.2 |
| 77.5°  | 152.6 | 195.4 | 243.8 | 274.5 | 285.5 |
| 80°    | 119.7 | 163.6 | 211.9 | 244.9 | 253.6 |
| 82.5°  | 86.7  | 132.9 | 181.2 | 215.2 | 225.1 |
| 85°    | 58.2  | 104.3 | 153.7 | 186.7 | 197.6 |
| 87.5°  | 36.2  | 81.3  | 129.6 | 161.4 | 171.3 |
| 90°    | 17.6  | 61.5  | 108.7 | 140.5 | 149.3 |
| 92.5°  | 16.5  | 54.9  | 102.1 | 132.9 | 141.6 |
| 95°    | 14.3  | 50.5  | 95.5  | 125.2 | 135.1 |
| 97.5°  | 13.2  | 45.0  | 90.0  | 118.6 | 128.5 |
| 100°   | 12.1  | 40.6  | 83.4  | 113.1 | 120.8 |
| 102.5° | 12.1  | 36.2  | 78.0  | 106.5 | 115.3 |
| 105°   | 9.9   | 31.8  | 72.5  | 99.9  | 108.7 |
| 107.5° | 9.9   | 28.5  | 67.0  | 94.4  | 102.1 |
| 110°   | 8.8   | 24.2  | 62.6  | 87.8  | 96.6  |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 22.5° | 45°  | 67.5° | 90°  |
|--------|-----|-------|------|-------|------|
| 112.5° | 7.7 | 20.9  | 57.1 | 81.3  | 90.0 |
| 115°   | 6.6 | 16.5  | 51.6 | 75.8  | 83.4 |
| 117.5° | 6.6 | 13.2  | 46.1 | 69.2  | 78.0 |
| 120°   | 5.5 | 8.8   | 40.6 | 62.6  | 71.4 |
| 122.5° | 5.5 | 5.5   | 35.1 | 57.1  | 64.8 |
| 125°   | 4.4 | 3.3   | 30.7 | 51.6  | 58.2 |
| 127.5° | 4.4 | 3.3   | 25.3 | 45.0  | 52.7 |
| 130°   | 3.3 | 2.2   | 19.8 | 39.5  | 46.1 |
| 132.5° | 3.3 | 2.2   | 15.4 | 34.0  | 40.6 |
| 135°   | 2.2 | 2.2   | 9.9  | 27.4  | 34.0 |
| 137.5° | 2.2 | 1.1   | 5.5  | 22.0  | 27.4 |
| 140°   | 2.2 | 1.1   | 2.2  | 16.5  | 22.0 |
| 142.5° | 1.1 | 1.1   | 0.0  | 12.1  | 16.5 |
| 145°   | 1.1 | 0.0   | 0.0  | 6.6   | 11.0 |
| 147.5° | 1.1 | 0.0   | 0.0  | 1.1   | 5.5  |
| 150°   | 1.1 | 0.0   | 0.0  | 0.0   | 0.0  |
| 152.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 155°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 157.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 160°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 162.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 165°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 167.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 170°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 172.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 175°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 177.5° | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |
| 180°   | 0.0 | 0.0   | 0.0  | 0.0   | 0.0  |

(END OF REPORT)