

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: P998438

Luminaire Tested: S124DR-B1020DB30-4F0-XX-W2A-D

Issue Date: 5/2/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P998438  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-16)  
Test Lab: INNOVATION CENTER  
Issue Date: 5/2/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124DR-B1020DB30-4F0-XX-W2A-D  
Description: Define 4 Direct Recessed with 3000K BioUP LEDs {m-DER=0.589} {m-EER=0.647}  
Light Source: -  
Ballast/Driver: -

**Summary**

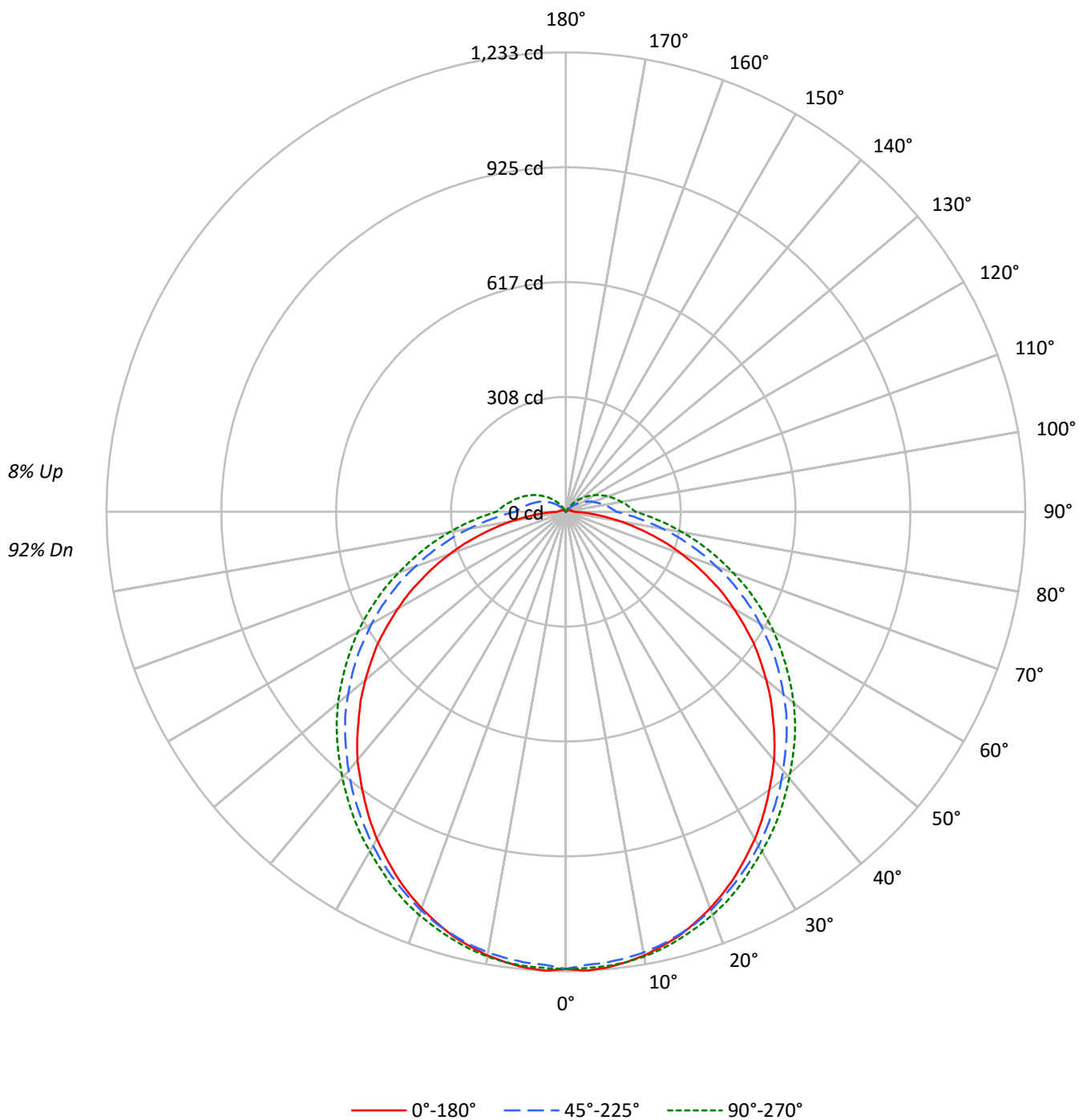
Lumens per Lamp: N/A  
Luminaire Lumens: 4184.0 lumens  
Efficiency: N/A  
Efficacy: 89.4 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular (W 0.33' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 46.8  
Input Voltage (V):  
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 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50 | 30 | 10 |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |
| 0   | 117 | 117 | 117 | 117 | 114 | 114 | 114 | 114 | 107 | 107 | 107 | 101 | 101 | 101 | 95 | 95 | 95 |
| 1   | 105 | 100 | 95  | 91  | 102 | 97  | 93  | 89  | 91  | 88  | 84  | 86  | 83  | 80  | 81 | 79 | 77 |
| 2   | 95  | 86  | 79  | 73  | 92  | 84  | 77  | 71  | 79  | 73  | 68  | 74  | 70  | 66  | 70 | 67 | 63 |
| 3   | 87  | 75  | 67  | 60  | 83  | 73  | 65  | 59  | 69  | 62  | 57  | 65  | 60  | 55  | 62 | 57 | 53 |
| 4   | 79  | 66  | 57  | 50  | 76  | 65  | 56  | 49  | 61  | 54  | 48  | 58  | 52  | 47  | 55 | 49 | 45 |
| 5   | 73  | 59  | 50  | 43  | 70  | 58  | 49  | 42  | 55  | 47  | 41  | 52  | 45  | 40  | 49 | 44 | 39 |
| 6   | 67  | 53  | 44  | 37  | 64  | 52  | 43  | 37  | 49  | 42  | 36  | 47  | 40  | 35  | 45 | 39 | 34 |
| 7   | 62  | 48  | 39  | 33  | 60  | 47  | 38  | 32  | 45  | 37  | 32  | 43  | 36  | 31  | 41 | 35 | 30 |
| 8   | 58  | 44  | 35  | 29  | 56  | 43  | 35  | 29  | 41  | 33  | 28  | 39  | 32  | 28  | 37 | 31 | 27 |
| 9   | 54  | 40  | 32  | 26  | 52  | 39  | 31  | 26  | 38  | 30  | 25  | 36  | 29  | 25  | 34 | 29 | 24 |
| 10  | 50  | 37  | 29  | 24  | 49  | 36  | 29  | 23  | 35  | 28  | 23  | 33  | 27  | 23  | 32 | 26 | 22 |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 10007 | 10007 | 10007 |
| 5°  | 10057 | 9944  | 10022 |
| 10° | 10013 | 9945  | 10037 |
| 15° | 9942  | 9920  | 10012 |
| 20° | 9827  | 9874  | 9993  |
| 25° | 9694  | 9805  | 9954  |
| 30° | 9550  | 9744  | 9912  |
| 35° | 9384  | 9686  | 9918  |
| 40° | 9260  | 9655  | 9933  |
| 45° | 9065  | 9667  | 10016 |
| 50° | 8908  | 9676  | 10129 |
| 55° | 8753  | 9749  | 10257 |
| 60° | 8494  | 9816  | 10511 |
| 65° | 8220  | 9970  | 10846 |
| 70° | 7897  | 10254 | 11370 |
| 75° | 7448  | 10867 | 12470 |
| 80° | 7035  | 12454 | 14905 |
| 85° | 6811  | 18001 | 23147 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 87.5°

Luminance: 40081 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 116.3  | 2.8       |
| 10°-20°   | 333.2  | 8.0       |
| 20°-30°   | 503.7  | 12.0      |
| 30°-40°   | 609.4  | 14.6      |
| 40°-50°   | 644.3  | 15.4      |
| 50°-60°   | 606.3  | 14.5      |
| 60°-70°   | 503.1  | 12.0      |
| 70°-80°   | 353.1  | 8.4       |
| 80°-90°   | 199.1  | 4.8       |
| 90°-100°  | 118.5  | 2.8       |
| 100°-110° | 87.7   | 2.1       |
| 110°-120° | 58.9   | 1.4       |
| 120°-130° | 33.2   | 0.8       |
| 130°-140° | 14.3   | 0.3       |
| 140°-150° | 2.8    | 0.1       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 953.2  | 22.8      |
| 0°-40°    | 1562.6 | 37.3      |
| 0°-60°    | 2813.2 | 67.2      |
| 0°-90°    | 3868.5 | 92.5      |
| 90°-120°  | 265.1  | 6.3       |
| 90°-150°  | 315.5  | 7.5       |
| 90°-180°  | 315.0  | 7.5       |
| 0°-180°   | 4184.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1227 | 1227  | 1227 | 1227  | 1227 |      |
| 5°   | 1229 | 1224  | 1215 | 1226  | 1224 | 117  |
| 15°  | 1178 | 1179  | 1175 | 1187  | 1186 | 332  |
| 25°  | 1077 | 1086  | 1090 | 1105  | 1106 | 496  |
| 35°  | 943  | 959   | 973  | 992   | 996  | 590  |
| 45°  | 786  | 812   | 838  | 862   | 868  | 608  |
| 55°  | 616  | 644   | 686  | 713   | 722  | 549  |
| 65°  | 426  | 470   | 517  | 551   | 562  | 422  |
| 75°  | 236  | 287   | 345  | 383   | 396  | 251  |
| 85°  | 73   | 131   | 192  | 234   | 247  | 76   |
| 90°  | 22   | 77    | 136  | 176   | 187  | 15   |
| 95°  | 18   | 63    | 120  | 157   | 169  | 14   |
| 105° | 12   | 40    | 91   | 125   | 136  | 14   |
| 115° | 8    | 21    | 65   | 95    | 104  | 9    |
| 125° | 6    | 4     | 38   | 65    | 73   | 5    |
| 135° | 3    | 3     | 12   | 34    | 43   | 3    |
| 145° | 1    | 0     | 0    | 8     | 14   | 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    |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1227.2 | 1227.2 | 1227.2 | 1227.2 | 1227.2 |
| 2.5°   | 1232.7 | 1228.6 | 1217.6 | 1227.2 | 1225.8 |
| 5°     | 1228.6 | 1224.4 | 1214.8 | 1225.8 | 1224.4 |
| 7.5°   | 1220.3 | 1217.6 | 1209.3 | 1221.7 | 1220.3 |
| 10°    | 1209.3 | 1208.0 | 1201.1 | 1213.4 | 1212.1 |
| 12.5°  | 1194.2 | 1194.2 | 1190.1 | 1201.1 | 1201.1 |
| 15°    | 1177.7 | 1179.1 | 1175.0 | 1187.3 | 1186.0 |
| 17.5°  | 1155.7 | 1159.9 | 1158.5 | 1170.8 | 1169.5 |
| 20°    | 1132.4 | 1136.5 | 1137.9 | 1151.6 | 1151.6 |
| 22.5°  | 1106.3 | 1111.8 | 1114.5 | 1128.2 | 1131.0 |
| 25°    | 1077.4 | 1085.6 | 1089.8 | 1104.9 | 1106.3 |
| 27.5°  | 1045.8 | 1058.2 | 1063.7 | 1077.4 | 1078.8 |
| 30°    | 1014.2 | 1025.2 | 1034.8 | 1049.9 | 1052.7 |
| 32.5°  | 979.8  | 993.6  | 1004.6 | 1022.4 | 1025.2 |
| 35°    | 942.7  | 959.2  | 973.0  | 992.2  | 996.3  |
| 37.5°  | 905.6  | 924.9  | 941.4  | 960.6  | 964.7  |
| 40°    | 869.9  | 887.8  | 907.0  | 927.6  | 933.1  |
| 42.5°  | 828.7  | 849.3  | 872.6  | 896.0  | 900.1  |
| 45°    | 786.1  | 812.2  | 838.3  | 861.6  | 868.5  |
| 47.5°  | 746.2  | 772.3  | 802.6  | 825.9  | 834.2  |
| 50°    | 702.2  | 732.5  | 762.7  | 790.2  | 798.4  |
| 52.5°  | 658.3  | 688.5  | 724.2  | 751.7  | 760.0  |
| 55°    | 615.7  | 644.5  | 685.7  | 713.2  | 721.5  |
| 57.5°  | 567.6  | 603.3  | 643.1  | 676.1  | 683.0  |
| 60°    | 520.8  | 556.6  | 601.9  | 633.5  | 644.5  |
| 62.5°  | 475.5  | 515.3  | 560.7  | 592.3  | 603.3  |
| 65°    | 426.0  | 470.0  | 516.7  | 551.1  | 562.1  |
| 67.5°  | 379.3  | 426.0  | 475.5  | 509.8  | 520.8  |
| 70°    | 331.2  | 377.9  | 430.1  | 467.2  | 476.9  |
| 72.5°  | 284.5  | 332.6  | 388.9  | 424.6  | 435.6  |
| 75°    | 236.4  | 287.2  | 344.9  | 383.4  | 395.8  |
| 77.5°  | 191.0  | 244.6  | 305.1  | 343.6  | 357.3  |
| 80°    | 149.8  | 204.8  | 265.2  | 306.5  | 317.4  |
| 82.5°  | 108.6  | 166.3  | 226.7  | 269.4  | 281.7  |
| 85°    | 72.8   | 130.6  | 192.4  | 233.6  | 247.4  |
| 87.5°  | 45.3   | 101.7  | 162.2  | 202.0  | 214.4  |
| 90°    | 22.0   | 77.0   | 136.0  | 175.9  | 186.9  |
| 92.5°  | 20.6   | 68.7   | 127.8  | 166.3  | 177.3  |
| 95°    | 17.9   | 63.2   | 119.6  | 156.7  | 169.0  |
| 97.5°  | 16.5   | 56.3   | 112.7  | 148.4  | 160.8  |
| 100°   | 15.1   | 50.8   | 104.4  | 141.5  | 151.2  |
| 102.5° | 15.1   | 45.3   | 97.6   | 133.3  | 144.3  |
| 105°   | 12.4   | 39.9   | 90.7   | 125.1  | 136.0  |
| 107.5° | 12.4   | 35.7   | 83.8   | 118.2  | 127.8  |
| 110°   | 11.0   | 30.2   | 78.3   | 109.9  | 120.9  |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 22.5° | 45°  | 67.5° | 90°   |
|--------|-----|-------|------|-------|-------|
| 112.5° | 9.6 | 26.1  | 71.5 | 101.7 | 112.7 |
| 115°   | 8.2 | 20.6  | 64.6 | 94.8  | 104.4 |
| 117.5° | 8.2 | 16.5  | 57.7 | 86.6  | 97.6  |
| 120°   | 6.9 | 11.0  | 50.8 | 78.3  | 89.3  |
| 122.5° | 6.9 | 6.9   | 44.0 | 71.5  | 81.1  |
| 125°   | 5.5 | 4.1   | 38.5 | 64.6  | 72.8  |
| 127.5° | 5.5 | 4.1   | 31.6 | 56.3  | 66.0  |
| 130°   | 4.1 | 2.7   | 24.7 | 49.5  | 57.7  |
| 132.5° | 4.1 | 2.7   | 19.2 | 42.6  | 50.8  |
| 135°   | 2.7 | 2.7   | 12.4 | 34.4  | 42.6  |
| 137.5° | 2.7 | 1.4   | 6.9  | 27.5  | 34.4  |
| 140°   | 2.7 | 1.4   | 2.7  | 20.6  | 27.5  |
| 142.5° | 1.4 | 1.4   | 0.0  | 15.1  | 20.6  |
| 145°   | 1.4 | 0.0   | 0.0  | 8.2   | 13.7  |
| 147.5° | 1.4 | 0.0   | 0.0  | 1.4   | 6.9   |
| 150°   | 1.4 | 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)