

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: P929806

Luminaire Tested: DFN2DS-4P2F0-030DS830-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P929806  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333882)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-4P2F0-030DS830-RLL  
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

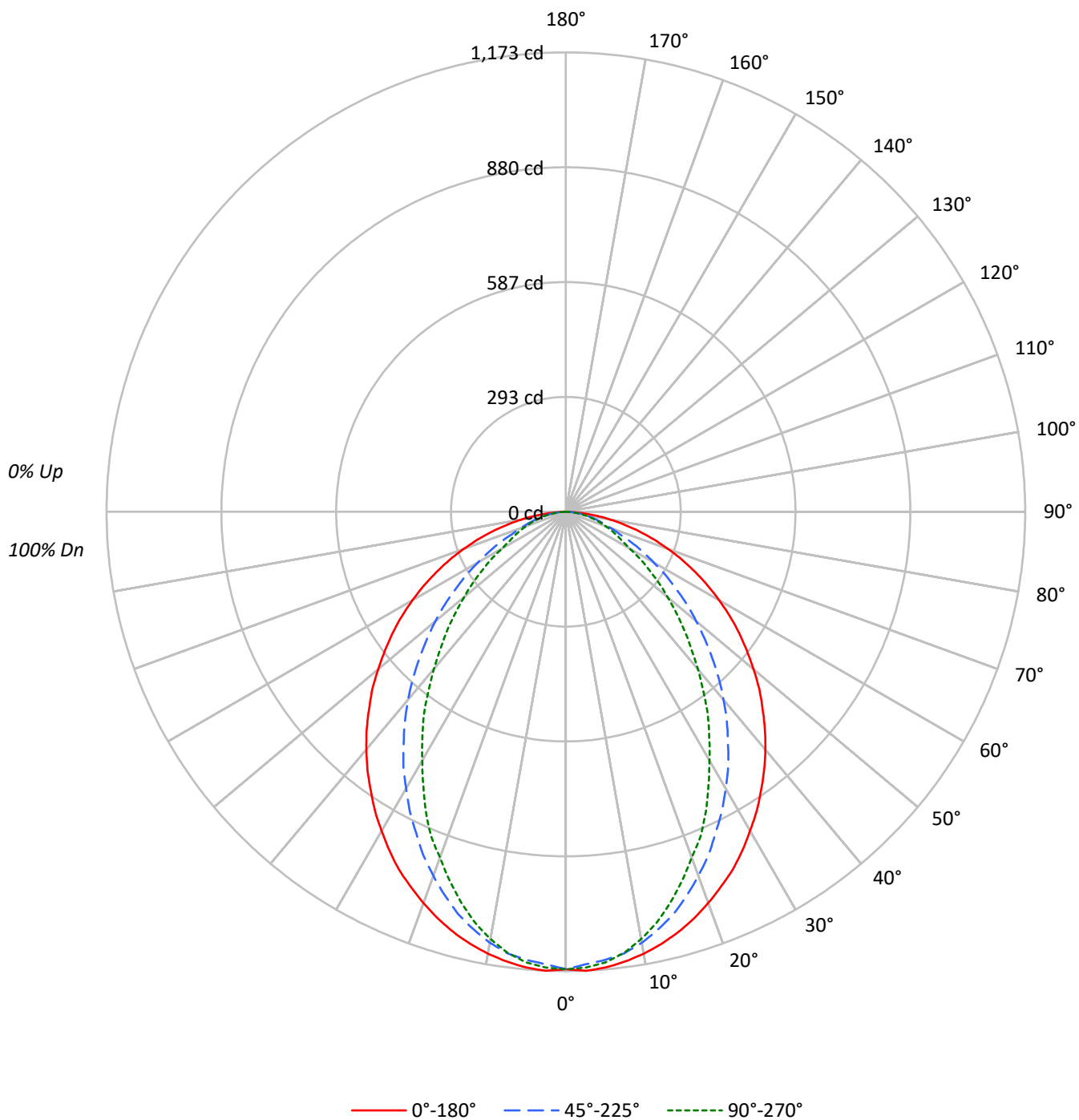
Lumens per Lamp: N/A  
Luminaire Lumens: 2402.1 lumens  
Efficiency: N/A  
Efficacy: 79.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 2.07' x L: 2.07' x H: 0')  
CIE Type: Direct

Input Watts (W): 30.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9954  
Total Harmonic Distortion (THDi): 0.076  
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  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 |
| 1   | 110 | 106 | 102 | 98  | 107 | 103 | 100 | 97  | 99  | 96  | 94  |  | 95  | 93  | 91  |  | 92  |
| 2   | 101 | 94  | 87  | 82  | 98  | 92  | 86  | 81  | 88  | 83  | 79  |  | 85  | 81  | 78  |  | 82  |
| 3   | 93  | 83  | 76  | 70  | 90  | 82  | 75  | 69  | 79  | 73  | 68  |  | 76  | 71  | 67  |  | 74  |
| 4   | 86  | 75  | 66  | 60  | 83  | 73  | 66  | 60  | 71  | 64  | 59  |  | 69  | 63  | 58  |  | 66  |
| 5   | 79  | 67  | 59  | 53  | 77  | 66  | 58  | 52  | 64  | 57  | 52  |  | 62  | 56  | 51  |  | 60  |
| 6   | 74  | 61  | 53  | 47  | 72  | 60  | 52  | 46  | 58  | 51  | 46  |  | 57  | 50  | 46  |  | 55  |
| 7   | 68  | 56  | 47  | 42  | 67  | 55  | 47  | 42  | 53  | 46  | 41  |  | 52  | 46  | 41  |  | 51  |
| 8   | 64  | 51  | 43  | 38  | 62  | 51  | 43  | 37  | 49  | 42  | 37  |  | 48  | 42  | 37  |  | 47  |
| 9   | 60  | 47  | 39  | 34  | 59  | 47  | 39  | 34  | 46  | 39  | 34  |  | 44  | 38  | 34  |  | 44  |
| 10  | 56  | 44  | 36  | 31  | 55  | 43  | 36  | 31  | 42  | 36  | 31  |  | 41  | 35  | 31  |  | 41  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2925 | 2925 | 2925 |
| 5°  | 2936 | 2888 | 2904 |
| 10° | 2913 | 2841 | 2817 |
| 15° | 2880 | 2756 | 2677 |
| 20° | 2833 | 2636 | 2504 |
| 25° | 2786 | 2500 | 2336 |
| 30° | 2720 | 2359 | 2121 |
| 35° | 2656 | 2207 | 1932 |
| 40° | 2591 | 2049 | 1714 |
| 45° | 2516 | 1872 | 1516 |
| 50° | 2438 | 1693 | 1322 |
| 55° | 2357 | 1500 | 1135 |
| 60° | 2265 | 1297 | 943  |
| 65° | 2160 | 1090 | 858  |
| 70° | 2035 | 898  | 789  |
| 75° | 1881 | 818  | 736  |
| 80° | 1661 | 731  | 671  |
| 85° | 1304 | 577  | 577  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2516 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 109.5  | 4.6       |
| 10°-20°   | 300.5  | 12.5      |
| 20°-30°   | 421.9  | 17.6      |
| 30°-40°   | 459.9  | 19.1      |
| 40°-50°   | 422.7  | 17.6      |
| 50°-60°   | 332.0  | 13.8      |
| 60°-70°   | 216.1  | 9.0       |
| 70°-80°   | 111.2  | 4.6       |
| 80°-90°   | 28.4   | 1.2       |
| 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°    | 831.9  | 34.6      |
| 0°-40°    | 1291.8 | 53.8      |
| 0°-60°    | 2046.4 | 85.2      |
| 0°-90°    | 2402.1 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2402.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1168 | 1168  | 1168 | 1168  | 1168 |      |
| 5°  | 1168 | 1163  | 1149 | 1158  | 1155 | 111  |
| 15° | 1111 | 1099  | 1063 | 1043  | 1033 | 313  |
| 25° | 1008 | 974   | 905  | 862   | 846  | 464  |
| 35° | 869  | 815   | 722  | 655   | 632  | 544  |
| 45° | 710  | 639   | 529  | 453   | 428  | 549  |
| 55° | 540  | 458   | 344  | 280   | 260  | 483  |
| 65° | 365  | 279   | 184  | 148   | 145  | 362  |
| 75° | 194  | 120   | 85   | 77    | 76   | 206  |
| 85° | 45   | 23    | 20   | 20    | 20   | 54   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1168.0 | 1168.0 | 1168.0 | 1168.0 | 1168.0 |
| 2.5°  | 1173.3 | 1168.0 | 1156.3 | 1166.9 | 1164.9 |
| 5°    | 1168.0 | 1162.7 | 1149.0 | 1158.5 | 1155.3 |
| 7.5°  | 1158.5 | 1152.2 | 1137.4 | 1141.5 | 1136.2 |
| 10°   | 1145.8 | 1138.4 | 1117.3 | 1114.0 | 1107.8 |
| 12.5° | 1129.9 | 1120.4 | 1091.9 | 1085.6 | 1073.9 |
| 15°   | 1110.9 | 1099.2 | 1063.3 | 1043.3 | 1032.7 |
| 17.5° | 1088.7 | 1071.8 | 1027.3 | 1004.2 | 987.2  |
| 20°   | 1063.3 | 1042.1 | 989.3  | 963.0  | 939.6  |
| 22.5° | 1035.9 | 1011.5 | 950.2  | 914.3  | 898.5  |
| 25°   | 1008.4 | 974.5  | 904.8  | 861.5  | 845.5  |
| 27.5° | 975.6  | 939.6  | 862.5  | 812.9  | 788.5  |
| 30°   | 940.8  | 900.6  | 816.0  | 762.2  | 733.5  |
| 32.5° | 906.9  | 858.3  | 771.7  | 708.2  | 681.7  |
| 35°   | 868.9  | 814.9  | 721.9  | 655.3  | 632.1  |
| 37.5° | 831.9  | 773.7  | 675.4  | 602.4  | 576.1  |
| 40°   | 792.8  | 729.4  | 626.8  | 551.7  | 524.3  |
| 42.5° | 752.6  | 685.0  | 578.2  | 499.9  | 473.5  |
| 45°   | 710.4  | 639.4  | 528.6  | 453.4  | 428.0  |
| 47.5° | 670.1  | 595.2  | 481.0  | 405.8  | 382.6  |
| 50°   | 625.8  | 550.7  | 434.5  | 361.4  | 339.3  |
| 52.5° | 582.3  | 503.1  | 390.1  | 320.3  | 300.2  |
| 55°   | 540.0  | 457.6  | 343.5  | 280.2  | 260.1  |
| 57.5° | 496.8  | 412.2  | 302.4  | 243.1  | 226.2  |
| 60°   | 452.3  | 367.9  | 259.0  | 205.1  | 188.2  |
| 62.5° | 409.1  | 324.5  | 221.9  | 171.3  | 162.9  |
| 65°   | 364.6  | 279.0  | 183.9  | 148.0  | 144.8  |
| 67.5° | 322.4  | 236.7  | 148.0  | 130.0  | 126.8  |
| 70°   | 278.0  | 195.6  | 122.6  | 112.0  | 107.8  |
| 72.5° | 235.7  | 157.4  | 102.5  | 94.1   | 91.9   |
| 75°   | 194.4  | 120.5  | 84.6   | 77.1   | 76.1   |
| 77.5° | 153.3  | 85.5   | 66.6   | 62.4   | 60.2   |
| 80°   | 115.2  | 61.3   | 50.7   | 46.5   | 46.5   |
| 82.5° | 80.3   | 41.3   | 34.9   | 32.8   | 32.8   |
| 85°   | 45.4   | 23.2   | 20.1   | 20.1   | 20.1   |
| 87.5° | 17.0   | 8.4    | 8.4    | 7.4    | 7.4    |
| 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 | 14.96            | 16.48 | 15.33 | 16.80 | 17.11 | 10.92          | 12.44 | 11.29 | 12.76 | 13.07 |
|                 | 3H   | 16.73            | 18.09 | 17.11 | 18.42 | 18.78 | 12.19          | 13.55 | 12.57 | 13.88 | 14.24 |
|                 | 4H   | 17.39            | 18.67 | 17.79 | 19.02 | 19.40 | 12.69          | 13.97 | 13.09 | 14.32 | 14.70 |
|                 | 6H   | 17.88            | 19.07 | 18.30 | 19.43 | 19.82 | 13.07          | 14.25 | 13.48 | 14.62 | 15.01 |
|                 | 8H   | 18.05            | 19.18 | 18.48 | 19.56 | 19.97 | 13.20          | 14.32 | 13.62 | 14.71 | 15.11 |
|                 | 12H  | 18.15            | 19.23 | 18.58 | 19.61 | 20.04 | 13.28          | 14.36 | 13.71 | 14.74 | 15.17 |
| 4H              | 2H   | 15.07            | 16.35 | 15.47 | 16.70 | 17.07 | 11.62          | 12.90 | 12.02 | 13.25 | 13.63 |
|                 | 3H   | 17.00            | 18.06 | 17.41 | 18.46 | 18.86 | 13.06          | 14.12 | 13.47 | 14.52 | 14.93 |
|                 | 4H   | 17.75            | 18.71 | 18.18 | 19.12 | 19.56 | 13.66          | 14.62 | 14.09 | 15.03 | 15.47 |
|                 | 6H   | 18.34            | 19.17 | 18.80 | 19.62 | 20.08 | 14.15          | 14.98 | 14.61 | 15.42 | 15.88 |
|                 | 8H   | 18.56            | 19.33 | 19.02 | 19.78 | 20.24 | 14.31          | 15.09 | 14.77 | 15.53 | 16.00 |
|                 | 12H  | 18.71            | 19.40 | 19.19 | 19.88 | 20.35 | 14.43          | 15.12 | 14.91 | 15.60 | 16.07 |
| 8H              | 4H   | 17.77            | 18.55 | 18.24 | 19.00 | 19.46 | 14.01          | 14.79 | 14.48 | 15.24 | 15.70 |
|                 | 6H   | 18.41            | 19.05 | 18.91 | 19.54 | 20.02 | 14.60          | 15.24 | 15.10 | 15.74 | 16.21 |
|                 | 8H   | 18.66            | 19.24 | 19.18 | 19.75 | 20.24 | 14.82          | 15.40 | 15.34 | 15.91 | 16.40 |
|                 | 12H  | 18.87            | 19.38 | 19.38 | 19.87 | 20.43 | 15.00          | 15.51 | 15.51 | 16.00 | 16.57 |
| 12H             | 4H   | 17.76            | 18.45 | 18.24 | 18.93 | 19.40 | 14.06          | 14.75 | 14.54 | 15.23 | 15.70 |
|                 | 6H   | 18.39            | 18.97 | 18.91 | 19.48 | 19.97 | 14.66          | 15.24 | 15.18 | 15.75 | 16.24 |
|                 | 8H   | 18.68            | 19.19 | 19.19 | 19.68 | 20.24 | 14.94          | 15.45 | 15.45 | 15.94 | 16.51 |