

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: P930366

Luminaire Tested: DFN2DS-HX4F0-100DS835-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930366  
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-HX4F0-100DS835-RLL  
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

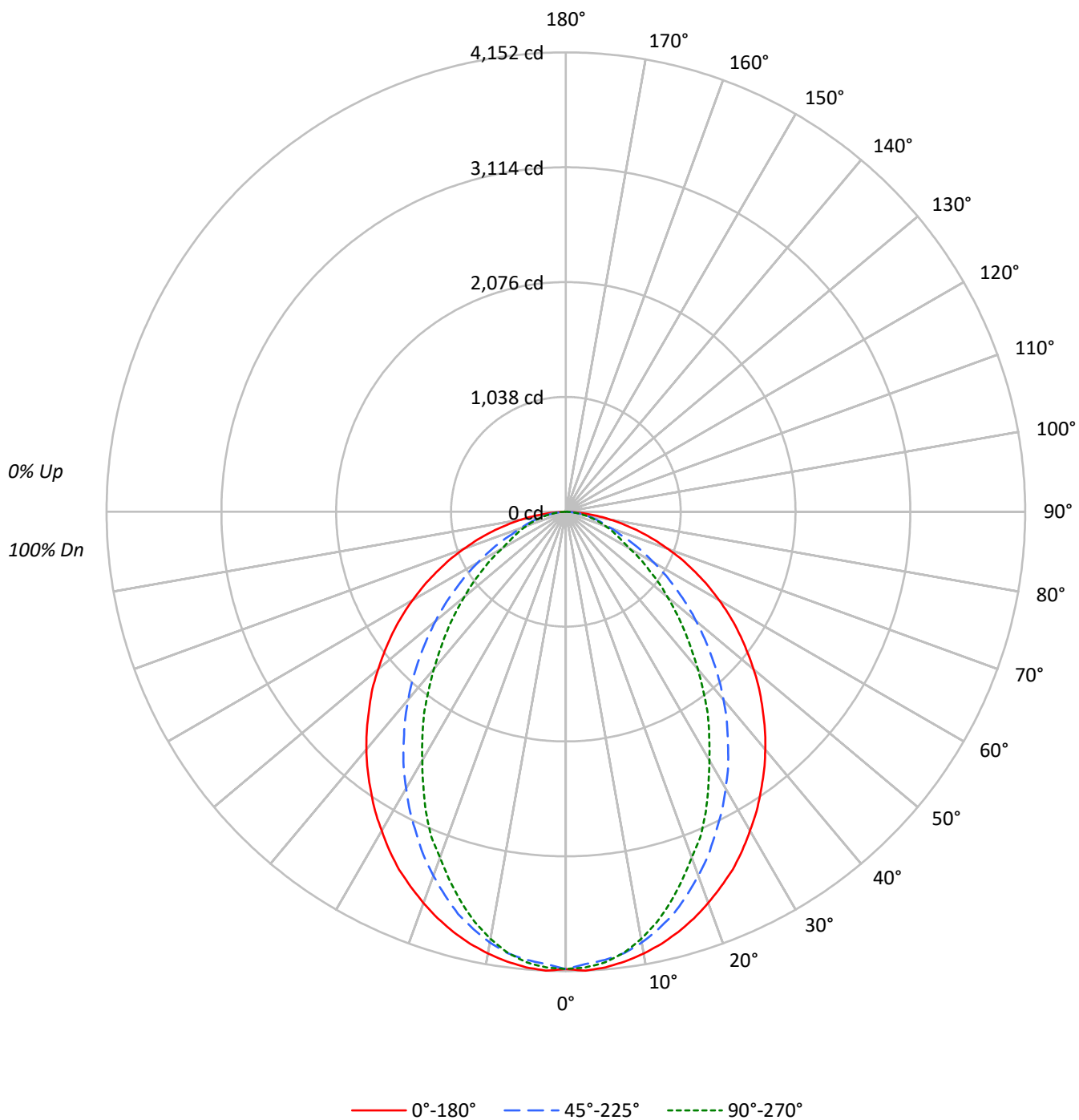
Lumens per Lamp: N/A  
Luminaire Lumens: 8500.0 lumens  
Efficiency: N/A  
Efficacy: 81.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 4.09' x L: 3.54' x H: 0')  
CIE Type: Direct

Input Watts (W): 104.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.946  
Total Harmonic Distortion (THDi): 0.132  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P930366

CATALOG NUMBER: DFN2DS-HX4F0-100DS835-RLL

### Luminous Intensity Polar Plot



TEST NUMBER: P930366

CATALOG NUMBER: DFN2DS-HX4F0-100DS835-RLL

**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°  | 3073 | 3073 | 3073 |
| 5°  | 3085 | 3035 | 3051 |
| 10° | 3061 | 2985 | 2960 |
| 15° | 3026 | 2897 | 2813 |
| 20° | 2977 | 2770 | 2631 |
| 25° | 2928 | 2627 | 2455 |
| 30° | 2858 | 2479 | 2229 |
| 35° | 2791 | 2319 | 2030 |
| 40° | 2723 | 2153 | 1801 |
| 45° | 2643 | 1967 | 1593 |
| 50° | 2561 | 1778 | 1389 |
| 55° | 2477 | 1576 | 1193 |
| 60° | 2381 | 1363 | 990  |
| 65° | 2271 | 1145 | 901  |
| 70° | 2139 | 943  | 829  |
| 75° | 1977 | 860  | 774  |
| 80° | 1745 | 768  | 705  |
| 85° | 1371 | 606  | 606  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2643 cd/sqm

TEST NUMBER: P930366

CATALOG NUMBER: DFN2DS-HX4F0-100DS835-RLL

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 387.3  | 4.6       |
| 10°-20°   | 1063.3 | 12.5      |
| 20°-30°   | 1492.9 | 17.6      |
| 30°-40°   | 1627.4 | 19.1      |
| 40°-50°   | 1495.7 | 17.6      |
| 50°-60°   | 1174.7 | 13.8      |
| 60°-70°   | 764.6  | 9.0       |
| 70°-80°   | 393.6  | 4.6       |
| 80°-90°   | 100.5  | 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°    | 2943.6 | 34.6      |
| 0°-40°    | 4571.0 | 53.8      |
| 0°-60°    | 7241.3 | 85.2      |
| 0°-90°    | 8500.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 8500.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 4133 | 4133  | 4133 | 4133  | 4133 |      |
| 5°  | 4133 | 4114  | 4066 | 4099  | 4088 | 392  |
| 15° | 3931 | 3890  | 3763 | 3692  | 3654 | 1108 |
| 25° | 3568 | 3448  | 3202 | 3048  | 2992 | 1641 |
| 35° | 3075 | 2884  | 2555 | 2319  | 2236 | 1924 |
| 45° | 2514 | 2263  | 1870 | 1604  | 1515 | 1941 |
| 55° | 1911 | 1620  | 1216 | 991   | 920  | 1708 |
| 65° | 1290 | 987   | 651  | 524   | 512  | 1279 |
| 75° | 688  | 426   | 299  | 273   | 269  | 728  |
| 85° | 161  | 82    | 71   | 71    | 71   | 193  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

TEST NUMBER: P930366

CATALOG NUMBER: DFN2DS-HX4F0-100DS835-RLL

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 4133.0 | 4133.0 | 4133.0 | 4133.0 | 4133.0 |
| 2.5°  | 4151.6 | 4133.0 | 4091.7 | 4129.4 | 4121.9 |
| 5°    | 4133.0 | 4114.3 | 4065.5 | 4099.3 | 4088.1 |
| 7.5°  | 4099.3 | 4077.0 | 4024.6 | 4039.3 | 4020.7 |
| 10°   | 4054.4 | 4028.2 | 3953.6 | 3942.1 | 3919.9 |
| 12.5° | 3998.5 | 3964.7 | 3863.5 | 3841.3 | 3800.0 |
| 15°   | 3931.0 | 3889.7 | 3762.7 | 3691.7 | 3654.4 |
| 17.5° | 3852.4 | 3792.5 | 3635.4 | 3553.2 | 3493.3 |
| 20°   | 3762.7 | 3687.7 | 3500.8 | 3407.6 | 3325.0 |
| 22.5° | 3665.5 | 3579.4 | 3362.3 | 3235.4 | 3179.4 |
| 25°   | 3568.3 | 3448.5 | 3201.6 | 3048.4 | 2992.1 |
| 27.5° | 3452.4 | 3325.0 | 3052.0 | 2876.2 | 2790.1 |
| 30°   | 3329.0 | 3186.5 | 2887.3 | 2696.9 | 2595.7 |
| 32.5° | 3209.2 | 3036.9 | 2730.6 | 2506.0 | 2412.3 |
| 35°   | 3074.6 | 2883.8 | 2554.8 | 2319.1 | 2236.5 |
| 37.5° | 2943.7 | 2737.7 | 2390.1 | 2131.8 | 2038.5 |
| 40°   | 2805.2 | 2581.0 | 2217.9 | 1952.4 | 1855.2 |
| 42.5° | 2663.1 | 2423.8 | 2046.1 | 1769.1 | 1675.8 |
| 45°   | 2513.5 | 2262.7 | 1870.3 | 1604.4 | 1514.7 |
| 47.5° | 2371.5 | 2106.0 | 1702.0 | 1436.1 | 1354.0 |
| 50°   | 2214.3 | 1948.8 | 1537.3 | 1279.0 | 1200.8 |
| 52.5° | 2060.7 | 1780.2 | 1380.2 | 1133.3 | 1062.3 |
| 55°   | 1911.1 | 1619.5 | 1215.5 | 991.3  | 920.2  |
| 57.5° | 1758.0 | 1458.7 | 1069.9 | 860.3  | 800.4  |
| 60°   | 1600.8 | 1301.6 | 916.3  | 725.8  | 665.9  |
| 62.5° | 1447.6 | 1148.4 | 785.3  | 606.0  | 576.2  |
| 65°   | 1290.5 | 987.3  | 650.8  | 523.8  | 512.3  |
| 67.5° | 1140.9 | 837.7  | 523.8  | 459.9  | 448.8  |
| 70°   | 983.7  | 692.1  | 433.7  | 396.4  | 381.4  |
| 72.5° | 834.1  | 557.1  | 362.7  | 332.9  | 325.4  |
| 75°   | 688.1  | 426.2  | 299.2  | 273.0  | 269.4  |
| 77.5° | 542.5  | 302.8  | 235.7  | 220.6  | 213.1  |
| 80°   | 407.5  | 217.1  | 179.4  | 164.7  | 164.7  |
| 82.5° | 284.1  | 146.0  | 123.4  | 115.9  | 115.9  |
| 85°   | 160.7  | 82.1   | 71.0   | 71.0   | 71.0   |
| 87.5° | 59.9   | 29.8   | 29.8   | 26.2   | 26.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

TEST NUMBER: P930366

CATALOG NUMBER: DFN2DS-HX4F0-100DS835-RLL

**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 | 15.14            | 16.66 | 15.50 | 16.97 | 17.29 | 11.10          | 12.62 | 11.46 | 12.93 | 13.25 |
|                 | 3H   | 16.90            | 18.27 | 17.28 | 18.59 | 18.96 | 12.36          | 13.73 | 12.74 | 14.05 | 14.42 |
|                 | 4H   | 17.57            | 18.85 | 17.97 | 19.20 | 19.57 | 12.86          | 14.14 | 13.26 | 14.49 | 14.87 |
|                 | 6H   | 18.06            | 19.24 | 18.47 | 19.61 | 20.00 | 13.24          | 14.43 | 13.66 | 14.79 | 15.18 |
|                 | 8H   | 18.22            | 19.35 | 18.65 | 19.74 | 20.14 | 13.37          | 14.49 | 13.79 | 14.88 | 15.29 |
|                 | 12H  | 18.32            | 19.40 | 18.75 | 19.78 | 20.21 | 13.45          | 14.53 | 13.88 | 14.91 | 15.34 |
| 4H              | 2H   | 15.24            | 16.52 | 15.64 | 16.87 | 17.25 | 11.79          | 13.07 | 12.19 | 13.42 | 13.80 |
|                 | 3H   | 17.17            | 18.24 | 17.58 | 18.64 | 19.04 | 13.23          | 14.30 | 13.64 | 14.70 | 15.10 |
|                 | 4H   | 17.92            | 18.88 | 18.35 | 19.29 | 19.73 | 13.83          | 14.79 | 14.27 | 15.21 | 15.64 |
|                 | 6H   | 18.51            | 19.35 | 18.97 | 19.79 | 20.25 | 14.32          | 15.15 | 14.78 | 15.60 | 16.06 |
|                 | 8H   | 18.73            | 19.51 | 19.19 | 19.95 | 20.42 | 14.48          | 15.26 | 14.95 | 15.71 | 16.17 |
|                 | 12H  | 18.88            | 19.58 | 19.36 | 20.05 | 20.53 | 14.60          | 15.30 | 15.08 | 15.77 | 16.25 |
| 8H              | 4H   | 17.95            | 18.72 | 18.41 | 19.17 | 19.63 | 14.19          | 14.96 | 14.65 | 15.41 | 15.88 |
|                 | 6H   | 18.58            | 19.23 | 19.08 | 19.72 | 20.19 | 14.77          | 15.42 | 15.27 | 15.91 | 16.39 |
|                 | 8H   | 18.83            | 19.41 | 19.35 | 19.92 | 20.41 | 15.00          | 15.57 | 15.51 | 16.08 | 16.57 |
|                 | 12H  | 19.04            | 19.55 | 19.55 | 20.04 | 20.60 | 15.17          | 15.68 | 15.68 | 16.18 | 16.74 |
| 12H             | 4H   | 17.93            | 18.63 | 18.41 | 19.10 | 19.57 | 14.23          | 14.93 | 14.71 | 15.40 | 15.87 |
|                 | 6H   | 18.56            | 19.14 | 19.08 | 19.65 | 20.14 | 14.84          | 15.42 | 15.35 | 15.92 | 16.41 |
|                 | 8H   | 18.85            | 19.36 | 19.36 | 19.85 | 20.42 | 15.11          | 15.62 | 15.62 | 16.11 | 16.68 |