

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: P930207

Luminaire Tested: DFN2DS-HX3F0-070DS850-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930207  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333812)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-HX3F0-070DS850-FLL  
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

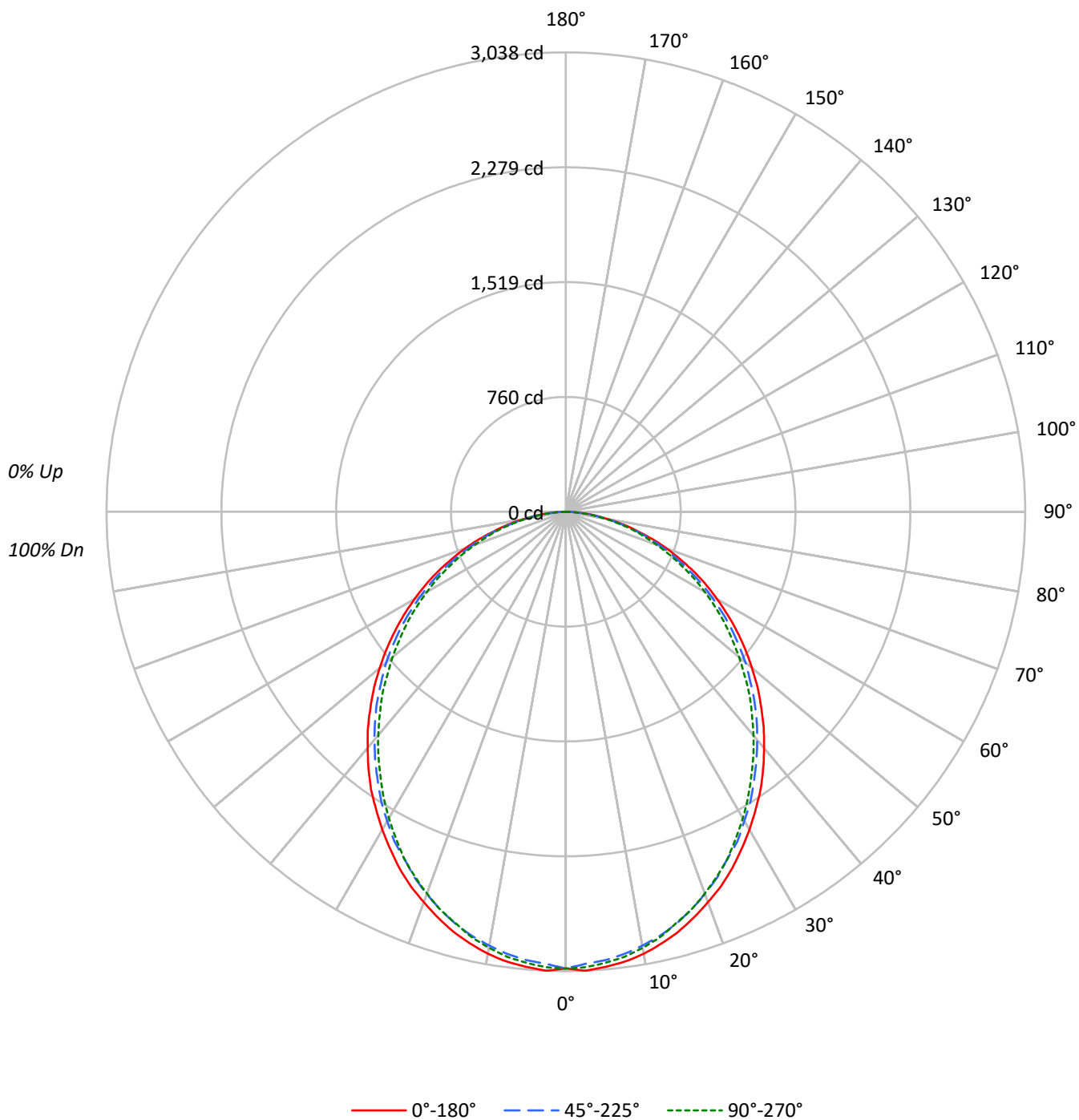
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7685.4 lumens  
Efficiency: N/A  
Efficacy: 104.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 3.28' x L: 2.84' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 73.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P930207

CATALOG NUMBER: DFN2DS-HX3F0-070DS850-FLL

### Luminous Intensity Polar Plot



TEST NUMBER: P930207

CATALOG NUMBER: DFN2DS-HX3F0-070DS850-FLL

**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   | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 95  | 98  | 95  | 92  |  | 94  | 91  | 89  |  | 90  |
| 2   | 99  | 91  | 85  | 79  | 97  | 89  | 83  | 78  | 86  | 81  | 76  |  | 83  | 78  | 74  |  | 80  |
| 3   | 91  | 80  | 72  | 66  | 88  | 79  | 71  | 65  | 76  | 69  | 64  |  | 73  | 68  | 63  |  | 71  |
| 4   | 83  | 71  | 63  | 56  | 81  | 70  | 62  | 56  | 68  | 61  | 55  |  | 65  | 59  | 54  |  | 63  |
| 5   | 77  | 64  | 55  | 49  | 75  | 63  | 55  | 48  | 61  | 53  | 48  |  | 59  | 52  | 47  |  | 57  |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 48  | 42  | 55  | 48  | 42  |  | 53  | 47  | 42  |  | 52  |
| 7   | 66  | 52  | 44  | 38  | 64  | 52  | 43  | 38  | 50  | 43  | 37  |  | 49  | 42  | 37  |  | 47  |
| 8   | 61  | 48  | 40  | 34  | 60  | 47  | 39  | 34  | 46  | 39  | 33  |  | 45  | 38  | 33  |  | 44  |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 36  | 30  | 42  | 35  | 30  |  | 41  | 35  | 30  |  | 40  |
| 10  | 54  | 41  | 33  | 28  | 53  | 40  | 33  | 28  | 39  | 32  | 27  |  | 38  | 32  | 27  |  | 37  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3499 | 3499 | 3499 |
| 5°  | 3512 | 3462 | 3482 |
| 10° | 3492 | 3427 | 3444 |
| 15° | 3448 | 3382 | 3379 |
| 20° | 3387 | 3316 | 3312 |
| 25° | 3326 | 3234 | 3234 |
| 30° | 3248 | 3159 | 3131 |
| 35° | 3175 | 3068 | 3023 |
| 40° | 3083 | 2978 | 2921 |
| 45° | 2993 | 2888 | 2817 |
| 50° | 2894 | 2795 | 2696 |
| 55° | 2792 | 2687 | 2587 |
| 60° | 2678 | 2557 | 2463 |
| 65° | 2556 | 2428 | 2317 |
| 70° | 2401 | 2272 | 2164 |
| 75° | 2183 | 2092 | 2041 |
| 80° | 1938 | 1879 | 1782 |
| 85° | 1582 | 1508 | 1352 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2993 cd/sqm

TEST NUMBER: P930207

CATALOG NUMBER: DFN2DS-HX3F0-070DS850-FLL

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 284.3  | 3.7       |
| 10°-20°   | 799.9  | 10.4      |
| 20°-30°   | 1175.6 | 15.3      |
| 30°-40°   | 1365.3 | 17.8      |
| 40°-50°   | 1363.6 | 17.7      |
| 50°-60°   | 1189.1 | 15.5      |
| 60°-70°   | 879.0  | 11.4      |
| 70°-80°   | 497.3  | 6.5       |
| 80°-90°   | 131.3  | 1.7       |
| 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°    | 2259.8 | 29.4      |
| 0°-40°    | 3625.1 | 47.2      |
| 0°-60°    | 6177.8 | 80.4      |
| 0°-90°    | 7685.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 7685.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3021 | 3021  | 3021 | 3021  | 3021 |      |
| 5°  | 3021 | 3009  | 2977 | 3000  | 2995 | 287  |
| 15° | 2876 | 2858  | 2820 | 2832  | 2818 | 810  |
| 25° | 2602 | 2579  | 2530 | 2536  | 2530 | 1198 |
| 35° | 2245 | 2216  | 2170 | 2152  | 2138 | 1402 |
| 45° | 1827 | 1807  | 1763 | 1731  | 1720 | 1410 |
| 55° | 1383 | 1365  | 1330 | 1296  | 1281 | 1236 |
| 65° | 933  | 915   | 886  | 860   | 845  | 922  |
| 75° | 488  | 482   | 467  | 450   | 456  | 521  |
| 85° | 119  | 116   | 114  | 104   | 102  | 140  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

TEST NUMBER: P930207

CATALOG NUMBER: DFN2DS-HX3F0-070DS850-FLL

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3020.6 | 3020.6 | 3020.6 | 3020.6 | 3020.6 |
| 2.5°  | 3038.2 | 3023.7 | 2991.6 | 3020.6 | 3015.0 |
| 5°    | 3020.6 | 3009.3 | 2977.2 | 3000.3 | 2994.7 |
| 7.5°  | 3000.3 | 2983.0 | 2950.9 | 2974.4 | 2968.6 |
| 10°   | 2968.6 | 2948.2 | 2913.3 | 2936.5 | 2927.9 |
| 12.5° | 2924.8 | 2907.6 | 2872.8 | 2887.2 | 2881.3 |
| 15°   | 2875.5 | 2858.2 | 2820.3 | 2832.1 | 2817.5 |
| 17.5° | 2814.4 | 2797.2 | 2759.3 | 2773.8 | 2759.3 |
| 20°   | 2747.5 | 2730.4 | 2689.7 | 2698.3 | 2686.9 |
| 22.5° | 2681.0 | 2654.8 | 2616.9 | 2616.9 | 2611.0 |
| 25°   | 2602.5 | 2579.3 | 2530.1 | 2535.6 | 2530.1 |
| 27.5° | 2515.2 | 2494.9 | 2457.3 | 2448.7 | 2434.1 |
| 30°   | 2428.4 | 2404.9 | 2361.5 | 2352.9 | 2341.1 |
| 32.5° | 2335.2 | 2318.0 | 2271.5 | 2253.9 | 2242.2 |
| 35°   | 2245.3 | 2216.3 | 2169.8 | 2152.2 | 2137.7 |
| 37.5° | 2143.6 | 2117.4 | 2070.8 | 2050.5 | 2036.0 |
| 40°   | 2039.1 | 2015.7 | 1969.1 | 1943.3 | 1931.5 |
| 42.5° | 1937.4 | 1914.0 | 1867.8 | 1838.5 | 1821.2 |
| 45°   | 1827.1 | 1806.8 | 1763.0 | 1731.3 | 1719.5 |
| 47.5° | 1719.5 | 1699.2 | 1652.6 | 1620.6 | 1603.4 |
| 50°   | 1606.2 | 1591.6 | 1550.9 | 1510.3 | 1495.8 |
| 52.5° | 1495.8 | 1475.5 | 1437.9 | 1405.9 | 1385.5 |
| 55°   | 1382.7 | 1365.2 | 1330.4 | 1295.5 | 1281.0 |
| 57.5° | 1269.4 | 1254.8 | 1216.9 | 1182.1 | 1170.4 |
| 60°   | 1155.9 | 1144.5 | 1103.9 | 1071.8 | 1063.2 |
| 62.5° | 1045.6 | 1025.3 | 996.3  | 967.4  | 955.6  |
| 65°   | 932.6  | 914.9  | 886.0  | 859.8  | 845.3  |
| 67.5° | 816.3  | 801.6  | 775.6  | 755.3  | 743.6  |
| 70°   | 708.8  | 697.1  | 670.8  | 650.5  | 639.1  |
| 72.5° | 598.4  | 586.8  | 572.2  | 551.9  | 543.3  |
| 75°   | 487.8  | 482.3  | 467.4  | 450.3  | 456.1  |
| 77.5° | 389.3  | 377.5  | 371.6  | 363.0  | 354.4  |
| 80°   | 290.6  | 287.6  | 281.7  | 273.0  | 267.2  |
| 82.5° | 197.5  | 197.5  | 194.7  | 183.1  | 183.1  |
| 85°   | 119.0  | 116.2  | 113.5  | 104.5  | 101.7  |
| 87.5° | 52.3   | 46.6   | 40.7   | 32.1   | 28.9   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

TEST NUMBER: P930207

CATALOG NUMBER: DFN2DS-HX3F0-070DS850-FLL

**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 | 15.63            | 17.24 | 16.00 | 17.56 | 17.87 | 15.19          | 16.80 | 15.55 | 17.11 | 17.43 |
|                 | 3H   | 17.38            | 18.84 | 17.76 | 19.17 | 19.53 | 16.89          | 18.35 | 17.27 | 18.67 | 19.03 |
|                 | 4H   | 18.03            | 19.40 | 18.43 | 19.75 | 20.12 | 17.54          | 18.90 | 17.93 | 19.25 | 19.63 |
|                 | 6H   | 18.50            | 19.77 | 18.91 | 20.13 | 20.52 | 18.00          | 19.27 | 18.41 | 19.63 | 20.02 |
|                 | 8H   | 18.64            | 19.85 | 19.07 | 20.24 | 20.64 | 18.14          | 19.35 | 18.56 | 19.74 | 20.14 |
|                 | 12H  | 18.73            | 19.89 | 19.16 | 20.27 | 20.70 | 18.22          | 19.38 | 18.65 | 19.76 | 20.19 |
| 4H              | 2H   | 16.19            | 17.56 | 16.59 | 17.91 | 18.29 | 15.84          | 17.21 | 16.24 | 17.56 | 17.93 |
|                 | 3H   | 18.17            | 19.32 | 18.58 | 19.71 | 20.11 | 17.76          | 18.91 | 18.17 | 19.31 | 19.71 |
|                 | 4H   | 18.95            | 19.98 | 19.38 | 20.40 | 20.83 | 18.52          | 19.56 | 18.95 | 19.97 | 20.41 |
|                 | 6H   | 19.54            | 20.45 | 20.00 | 20.89 | 21.34 | 19.11          | 20.01 | 19.56 | 20.46 | 20.91 |
|                 | 8H   | 19.73            | 20.58 | 20.19 | 21.02 | 21.49 | 19.29          | 20.14 | 19.75 | 20.58 | 21.05 |
|                 | 12H  | 19.86            | 20.62 | 20.34 | 21.10 | 21.57 | 19.41          | 20.17 | 19.89 | 20.65 | 21.12 |
| 8H              | 4H   | 19.22            | 20.07 | 19.68 | 20.51 | 20.97 | 18.85          | 19.69 | 19.31 | 20.13 | 20.60 |
|                 | 6H   | 19.93            | 20.64 | 20.43 | 21.13 | 21.60 | 19.55          | 20.26 | 20.05 | 20.74 | 21.22 |
|                 | 8H   | 20.19            | 20.82 | 20.70 | 21.33 | 21.82 | 19.80          | 20.43 | 20.31 | 20.94 | 21.42 |
|                 | 12H  | 20.39            | 20.95 | 20.90 | 21.44 | 22.00 | 19.98          | 20.54 | 20.49 | 21.03 | 21.59 |
| 12H             | 4H   | 19.25            | 20.01 | 19.73 | 20.48 | 20.95 | 18.88          | 19.64 | 19.36 | 20.12 | 20.59 |
|                 | 6H   | 19.98            | 20.61 | 20.49 | 21.12 | 21.60 | 19.61          | 20.24 | 20.12 | 20.75 | 21.24 |
|                 | 8H   | 20.29            | 20.85 | 20.80 | 21.34 | 21.90 | 19.92          | 20.47 | 20.42 | 20.96 | 21.52 |