

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: P930230

Luminaire Tested: DFN2DS-HX3F0-080DS930-RLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930230  
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-HX3F0-080DS930-RLL  
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

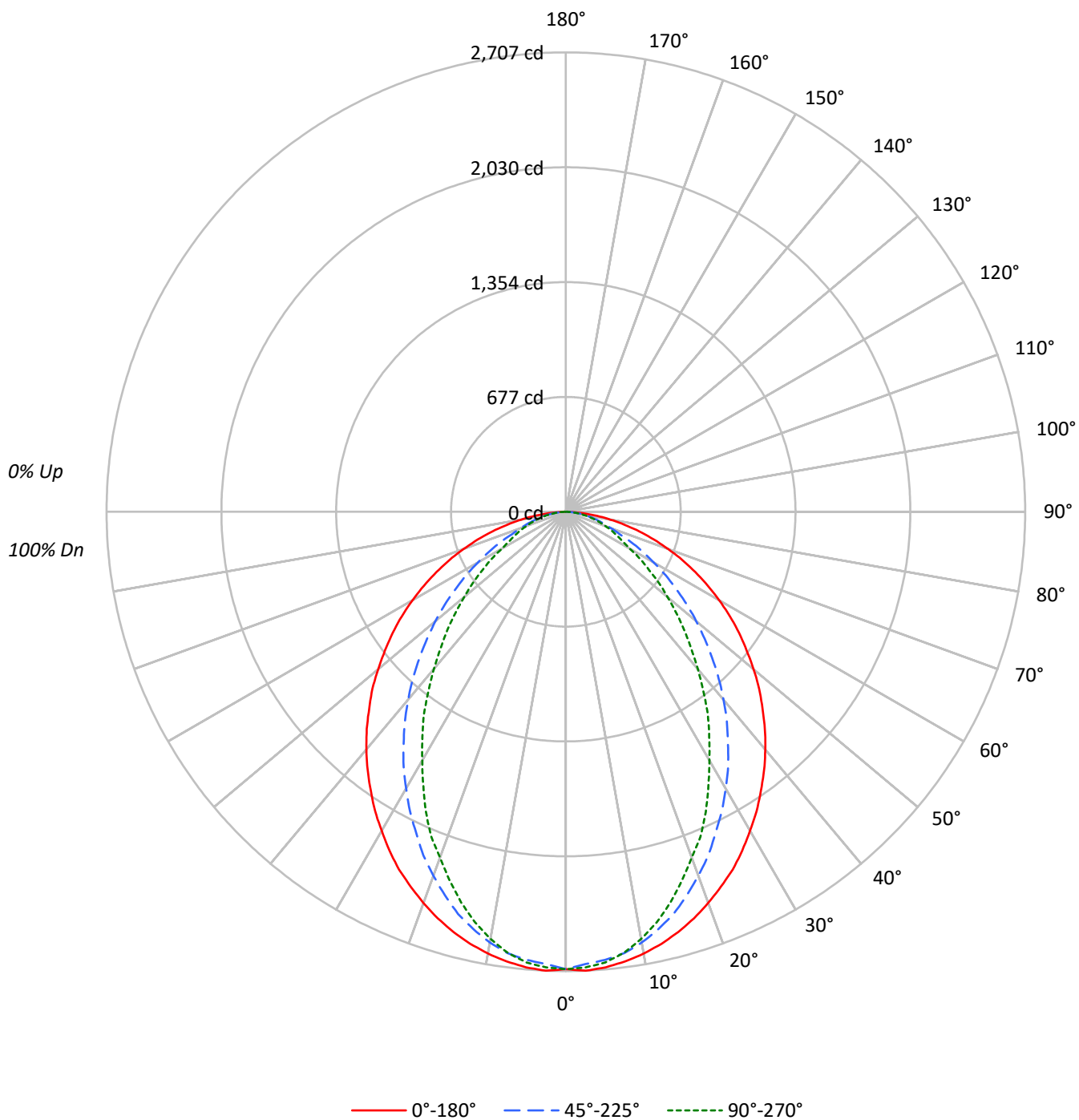
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5542.0 lumens  
Efficiency: N/A  
Efficacy: 65.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 3.28' x L: 2.84' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 84.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
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°  | 3121 | 3121 | 3121 |
| 5°  | 3133 | 3082 | 3099 |
| 10° | 3109 | 3032 | 3006 |
| 15° | 3074 | 2942 | 2857 |
| 20° | 3024 | 2814 | 2672 |
| 25° | 2973 | 2668 | 2493 |
| 30° | 2903 | 2518 | 2264 |
| 35° | 2835 | 2355 | 2062 |
| 40° | 2766 | 2187 | 1829 |
| 45° | 2685 | 1998 | 1618 |
| 50° | 2602 | 1806 | 1411 |
| 55° | 2517 | 1600 | 1212 |
| 60° | 2418 | 1384 | 1006 |
| 65° | 2306 | 1163 | 915  |
| 70° | 2172 | 958  | 842  |
| 75° | 2008 | 873  | 786  |
| 80° | 1772 | 780  | 716  |
| 85° | 1393 | 615  | 615  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2685 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 252.6  | 4.6       |
| 10°-20°   | 693.3  | 12.5      |
| 20°-30°   | 973.4  | 17.6      |
| 30°-40°   | 1061.0 | 19.1      |
| 40°-50°   | 975.2  | 17.6      |
| 50°-60°   | 765.9  | 13.8      |
| 60°-70°   | 498.5  | 9.0       |
| 70°-80°   | 256.6  | 4.6       |
| 80°-90°   | 65.5   | 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°    | 1919.2 | 34.6      |
| 0°-40°    | 2980.3 | 53.8      |
| 0°-60°    | 4721.4 | 85.2      |
| 0°-90°    | 5542.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5542.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2695 | 2695  | 2695 | 2695  | 2695 |      |
| 5°  | 2695 | 2683  | 2651 | 2673  | 2666 | 256  |
| 15° | 2563 | 2536  | 2453 | 2407  | 2383 | 722  |
| 25° | 2326 | 2248  | 2088 | 1988  | 1951 | 1070 |
| 35° | 2005 | 1880  | 1666 | 1512  | 1458 | 1255 |
| 45° | 1639 | 1475  | 1219 | 1046  | 988  | 1266 |
| 55° | 1246 | 1056  | 792  | 646   | 600  | 1113 |
| 65° | 841  | 644   | 424  | 342   | 334  | 834  |
| 75° | 449  | 278   | 195  | 178   | 176  | 475  |
| 85° | 105  | 54    | 46   | 46    | 46   | 126  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2694.7 | 2694.7 | 2694.7 | 2694.7 | 2694.7 |
| 2.5°  | 2706.9 | 2694.7 | 2667.8 | 2692.4 | 2687.5 |
| 5°    | 2694.7 | 2682.6 | 2650.7 | 2672.7 | 2665.5 |
| 7.5°  | 2672.7 | 2658.2 | 2624.1 | 2633.7 | 2621.4 |
| 10°   | 2643.5 | 2626.4 | 2577.8 | 2570.3 | 2555.8 |
| 12.5° | 2607.0 | 2585.0 | 2519.0 | 2504.5 | 2477.6 |
| 15°   | 2563.0 | 2536.1 | 2453.3 | 2407.0 | 2382.7 |
| 17.5° | 2511.7 | 2472.7 | 2370.3 | 2316.7 | 2277.6 |
| 20°   | 2453.3 | 2404.4 | 2282.6 | 2221.8 | 2167.9 |
| 22.5° | 2389.9 | 2333.8 | 2192.3 | 2109.5 | 2073.0 |
| 25°   | 2326.5 | 2248.4 | 2087.5 | 1987.6 | 1950.9 |
| 27.5° | 2250.9 | 2167.9 | 1989.9 | 1875.3 | 1819.2 |
| 30°   | 2170.5 | 2077.6 | 1882.6 | 1758.4 | 1692.3 |
| 32.5° | 2092.3 | 1980.1 | 1780.4 | 1633.9 | 1572.9 |
| 35°   | 2004.7 | 1880.2 | 1665.7 | 1512.1 | 1458.2 |
| 37.5° | 1919.2 | 1785.0 | 1558.4 | 1389.9 | 1329.1 |
| 40°   | 1829.0 | 1682.8 | 1446.1 | 1272.9 | 1209.5 |
| 42.5° | 1736.4 | 1580.4 | 1334.0 | 1153.5 | 1092.6 |
| 45°   | 1638.8 | 1475.3 | 1219.4 | 1046.1 | 987.6  |
| 47.5° | 1546.2 | 1373.1 | 1109.7 | 936.4  | 882.8  |
| 50°   | 1443.7 | 1270.7 | 1002.4 | 833.9  | 782.9  |
| 52.5° | 1343.6 | 1160.6 | 899.8  | 739.0  | 692.7  |
| 55°   | 1246.1 | 1055.9 | 792.5  | 646.3  | 600.0  |
| 57.5° | 1146.2 | 951.1  | 697.6  | 561.0  | 521.8  |
| 60°   | 1043.7 | 848.7  | 597.4  | 473.2  | 434.2  |
| 62.5° | 943.9  | 748.7  | 512.1  | 395.1  | 375.7  |
| 65°   | 841.4  | 643.7  | 424.3  | 341.6  | 334.0  |
| 67.5° | 743.9  | 546.2  | 341.6  | 299.8  | 292.7  |
| 70°   | 641.4  | 451.3  | 282.8  | 258.4  | 248.7  |
| 72.5° | 543.8  | 363.2  | 236.5  | 217.1  | 212.1  |
| 75°   | 448.7  | 277.9  | 195.1  | 178.0  | 175.7  |
| 77.5° | 353.7  | 197.4  | 153.7  | 143.8  | 139.0  |
| 80°   | 265.7  | 141.6  | 117.0  | 107.3  | 107.3  |
| 82.5° | 185.2  | 95.2   | 80.4   | 75.6   | 75.6   |
| 85°   | 104.8  | 53.5   | 46.3   | 46.3   | 46.3   |
| 87.5° | 39.0   | 19.4   | 19.4   | 17.1   | 17.1   |
| 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 | 15.19            | 16.71 | 15.55 | 17.02 | 17.34 | 11.15          | 12.67 | 11.52 | 12.99 | 13.30 |
|                 | 3H   | 16.95            | 18.32 | 17.33 | 18.65 | 19.01 | 12.42          | 13.78 | 12.79 | 14.11 | 14.47 |
|                 | 4H   | 17.62            | 18.90 | 18.02 | 19.25 | 19.63 | 12.92          | 14.20 | 13.32 | 14.55 | 14.92 |
|                 | 6H   | 18.11            | 19.29 | 18.52 | 19.66 | 20.05 | 13.30          | 14.48 | 13.71 | 14.85 | 15.24 |
|                 | 8H   | 18.28            | 19.40 | 18.70 | 19.79 | 20.19 | 13.42          | 14.55 | 13.85 | 14.94 | 15.34 |
|                 | 12H  | 18.38            | 19.46 | 18.81 | 19.84 | 20.27 | 13.50          | 14.58 | 13.93 | 14.96 | 15.39 |
| 4H              | 2H   | 15.29            | 16.57 | 15.69 | 16.92 | 17.30 | 11.85          | 13.13 | 12.25 | 13.48 | 13.85 |
|                 | 3H   | 17.23            | 18.29 | 17.64 | 18.69 | 19.09 | 13.29          | 14.35 | 13.70 | 14.75 | 15.15 |
|                 | 4H   | 17.98            | 18.93 | 18.41 | 19.35 | 19.79 | 13.89          | 14.84 | 14.32 | 15.26 | 15.70 |
|                 | 6H   | 18.57            | 19.40 | 19.03 | 19.84 | 20.30 | 14.38          | 15.21 | 14.83 | 15.65 | 16.11 |
|                 | 8H   | 18.78            | 19.56 | 19.25 | 20.00 | 20.47 | 14.54          | 15.32 | 15.00 | 15.76 | 16.23 |
|                 | 12H  | 18.94            | 19.63 | 19.42 | 20.11 | 20.58 | 14.66          | 15.35 | 15.14 | 15.83 | 16.30 |
| 8H              | 4H   | 18.00            | 18.78 | 18.46 | 19.22 | 19.69 | 14.24          | 15.02 | 14.71 | 15.46 | 15.93 |
|                 | 6H   | 18.64            | 19.28 | 19.13 | 19.77 | 20.25 | 14.83          | 15.47 | 15.33 | 15.96 | 16.44 |
|                 | 8H   | 18.89            | 19.46 | 19.40 | 19.97 | 20.46 | 15.05          | 15.63 | 15.56 | 16.14 | 16.62 |
|                 | 12H  | 19.09            | 19.60 | 19.60 | 20.09 | 20.66 | 15.23          | 15.74 | 15.74 | 16.23 | 16.80 |
| 12H             | 4H   | 17.98            | 18.68 | 18.47 | 19.16 | 19.63 | 14.29          | 14.98 | 14.77 | 15.46 | 15.93 |
|                 | 6H   | 18.62            | 19.20 | 19.13 | 19.71 | 20.19 | 14.89          | 15.47 | 15.41 | 15.98 | 16.47 |
|                 | 8H   | 18.90            | 19.41 | 19.41 | 19.91 | 20.47 | 15.17          | 15.67 | 15.67 | 16.17 | 16.73 |