

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: P930059

Luminaire Tested: DFN2DS-HX2F0-030DS835-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930059  
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-HX2F0-030DS835-FLL  
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

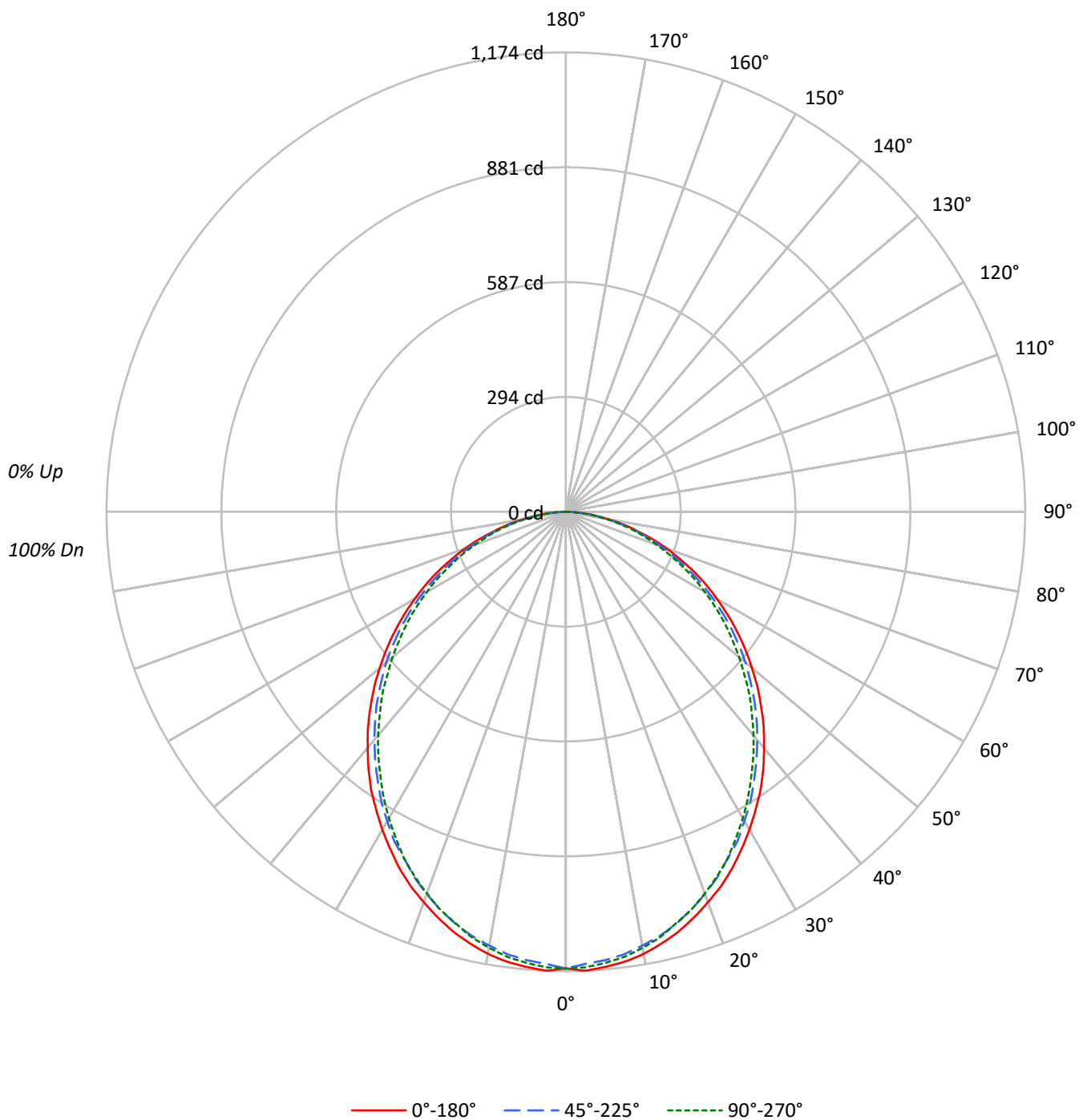
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2970.0 lumens  
Efficiency: N/A  
Efficacy: 107.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 2.3' x L: 1.99' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 27.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
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   | 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°  | 2750 | 2750 | 2750 |
| 5°  | 2761 | 2721 | 2737 |
| 10° | 2745 | 2694 | 2707 |
| 15° | 2711 | 2659 | 2656 |
| 20° | 2662 | 2606 | 2603 |
| 25° | 2615 | 2542 | 2542 |
| 30° | 2553 | 2483 | 2461 |
| 35° | 2496 | 2412 | 2376 |
| 40° | 2424 | 2341 | 2296 |
| 45° | 2353 | 2270 | 2214 |
| 50° | 2275 | 2197 | 2119 |
| 55° | 2195 | 2112 | 2034 |
| 60° | 2105 | 2010 | 1936 |
| 65° | 2009 | 1909 | 1821 |
| 70° | 1887 | 1786 | 1702 |
| 75° | 1716 | 1645 | 1605 |
| 80° | 1524 | 1476 | 1402 |
| 85° | 1244 | 1184 | 1062 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
Vertical Angle: 45°  
Luminance: 2353 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 109.9  | 3.7       |
| 10°-20°   | 309.1  | 10.4      |
| 20°-30°   | 454.3  | 15.3      |
| 30°-40°   | 527.6  | 17.8      |
| 40°-50°   | 527.0  | 17.7      |
| 50°-60°   | 459.5  | 15.5      |
| 60°-70°   | 339.7  | 11.4      |
| 70°-80°   | 192.2  | 6.5       |
| 80°-90°   | 50.7   | 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°    | 873.3  | 29.4      |
| 0°-40°    | 1400.9 | 47.2      |
| 0°-60°    | 2387.4 | 80.4      |
| 0°-90°    | 2970.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2970.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1167 | 1167  | 1167 | 1167  | 1167 |      |
| 5°  | 1167 | 1163  | 1150 | 1160  | 1157 | 111  |
| 15° | 1111 | 1105  | 1090 | 1094  | 1089 | 313  |
| 25° | 1006 | 997   | 978  | 980   | 978  | 463  |
| 35° | 868  | 856   | 838  | 832   | 826  | 542  |
| 45° | 706  | 698   | 681  | 669   | 664  | 545  |
| 55° | 534  | 528   | 514  | 501   | 495  | 478  |
| 65° | 360  | 354   | 342  | 332   | 327  | 356  |
| 75° | 188  | 186   | 181  | 174   | 176  | 201  |
| 85° | 46   | 45    | 44   | 40    | 39   | 54   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1167.3 | 1167.3 | 1167.3 | 1167.3 | 1167.3 |
| 2.5°  | 1174.1 | 1168.5 | 1156.1 | 1167.3 | 1165.2 |
| 5°    | 1167.3 | 1162.9 | 1150.5 | 1159.5 | 1157.3 |
| 7.5°  | 1159.5 | 1152.8 | 1140.4 | 1149.5 | 1147.2 |
| 10°   | 1147.2 | 1139.3 | 1125.9 | 1134.8 | 1131.5 |
| 12.5° | 1130.3 | 1123.6 | 1110.2 | 1115.7 | 1113.5 |
| 15°   | 1111.2 | 1104.6 | 1089.9 | 1094.4 | 1088.8 |
| 17.5° | 1087.6 | 1081.0 | 1066.3 | 1071.9 | 1066.3 |
| 20°   | 1061.8 | 1055.1 | 1039.4 | 1042.7 | 1038.3 |
| 22.5° | 1036.1 | 1026.0 | 1011.3 | 1011.3 | 1009.0 |
| 25°   | 1005.7 | 996.8  | 977.7  | 979.9  | 977.7  |
| 27.5° | 972.0  | 964.1  | 949.6  | 946.3  | 940.7  |
| 30°   | 938.4  | 929.4  | 912.6  | 909.2  | 904.7  |
| 32.5° | 902.5  | 895.8  | 877.8  | 871.0  | 866.5  |
| 35°   | 867.7  | 856.5  | 838.5  | 831.7  | 826.1  |
| 37.5° | 828.4  | 818.3  | 800.3  | 792.4  | 786.8  |
| 40°   | 788.0  | 779.0  | 761.0  | 751.0  | 746.5  |
| 42.5° | 748.7  | 739.7  | 721.8  | 710.5  | 703.8  |
| 45°   | 706.1  | 698.2  | 681.3  | 669.0  | 664.5  |
| 47.5° | 664.5  | 656.7  | 638.7  | 626.3  | 619.6  |
| 50°   | 620.7  | 615.1  | 599.4  | 583.7  | 578.1  |
| 52.5° | 578.1  | 570.2  | 555.7  | 543.3  | 535.4  |
| 55°   | 534.4  | 527.6  | 514.1  | 500.7  | 495.1  |
| 57.5° | 490.5  | 484.9  | 470.3  | 456.8  | 452.3  |
| 60°   | 446.7  | 442.3  | 426.6  | 414.2  | 410.9  |
| 62.5° | 404.1  | 396.2  | 385.0  | 373.8  | 369.3  |
| 65°   | 360.4  | 353.6  | 342.4  | 332.3  | 326.7  |
| 67.5° | 315.5  | 309.8  | 299.7  | 291.9  | 287.4  |
| 70°   | 273.9  | 269.4  | 259.3  | 251.4  | 247.0  |
| 72.5° | 231.3  | 226.7  | 221.1  | 213.3  | 210.0  |
| 75°   | 188.5  | 186.4  | 180.7  | 174.0  | 176.3  |
| 77.5° | 150.4  | 145.9  | 143.6  | 140.3  | 137.0  |
| 80°   | 112.3  | 111.1  | 108.8  | 105.5  | 103.3  |
| 82.5° | 76.3   | 76.3   | 75.3   | 70.7   | 70.7   |
| 85°   | 46.0   | 44.9   | 43.8   | 40.4   | 39.3   |
| 87.5° | 20.2   | 18.0   | 15.7   | 12.4   | 11.2   |
| 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 | 14.80            | 16.41 | 15.16 | 16.72 | 17.04 | 14.35          | 15.96 | 14.72 | 16.28 | 16.59 |
|                 | 3H   | 16.55            | 18.00 | 16.92 | 18.33 | 18.69 | 16.06          | 17.51 | 16.43 | 17.84 | 18.20 |
|                 | 4H   | 17.19            | 18.56 | 17.59 | 18.91 | 19.29 | 16.70          | 18.07 | 17.10 | 18.42 | 18.79 |
|                 | 6H   | 17.66            | 18.93 | 18.07 | 19.30 | 19.69 | 17.16          | 18.43 | 17.57 | 18.80 | 19.19 |
|                 | 8H   | 17.81            | 19.02 | 18.23 | 19.41 | 19.81 | 17.30          | 18.51 | 17.73 | 18.90 | 19.30 |
|                 | 12H  | 17.90            | 19.06 | 18.33 | 19.44 | 19.87 | 17.38          | 18.54 | 17.81 | 18.93 | 19.36 |
| 4H              | 2H   | 15.36            | 16.73 | 15.76 | 17.07 | 17.45 | 15.01          | 16.37 | 15.40 | 16.72 | 17.10 |
|                 | 3H   | 17.33            | 18.48 | 17.74 | 18.88 | 19.28 | 16.93          | 18.07 | 17.34 | 18.47 | 18.87 |
|                 | 4H   | 18.11            | 19.15 | 18.54 | 19.56 | 20.00 | 17.69          | 18.72 | 18.12 | 19.14 | 19.57 |
|                 | 6H   | 18.71            | 19.61 | 19.16 | 20.05 | 20.51 | 18.27          | 19.18 | 18.73 | 19.62 | 20.08 |
|                 | 8H   | 18.90            | 19.74 | 19.36 | 20.18 | 20.65 | 18.46          | 19.30 | 18.92 | 19.75 | 20.21 |
|                 | 12H  | 19.03            | 19.79 | 19.51 | 20.26 | 20.73 | 18.58          | 19.34 | 19.06 | 19.81 | 20.28 |
| 8H              | 4H   | 18.38            | 19.23 | 18.84 | 19.67 | 20.14 | 18.01          | 18.86 | 18.47 | 19.30 | 19.76 |
|                 | 6H   | 19.10            | 19.80 | 19.59 | 20.29 | 20.76 | 18.72          | 19.42 | 19.21 | 19.91 | 20.38 |
|                 | 8H   | 19.36            | 19.99 | 19.87 | 20.49 | 20.98 | 18.96          | 19.60 | 19.47 | 20.10 | 20.59 |
|                 | 12H  | 19.56            | 20.11 | 20.06 | 20.60 | 21.17 | 19.14          | 19.70 | 19.65 | 20.19 | 20.75 |
| 12H             | 4H   | 18.41            | 19.17 | 18.89 | 19.64 | 20.11 | 18.04          | 18.80 | 18.52 | 19.28 | 19.75 |
|                 | 6H   | 19.14            | 19.77 | 19.65 | 20.28 | 20.77 | 18.77          | 19.41 | 19.28 | 19.91 | 20.40 |
|                 | 8H   | 19.46            | 20.01 | 19.96 | 20.50 | 21.07 | 19.08          | 19.64 | 19.59 | 20.13 | 20.69 |