

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: P930285

Luminaire Tested: DFN2DS-HX4F0-050DS935-FLL

Issue Date: 11/20/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P930285  
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-HX4F0-050DS935-FLL  
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

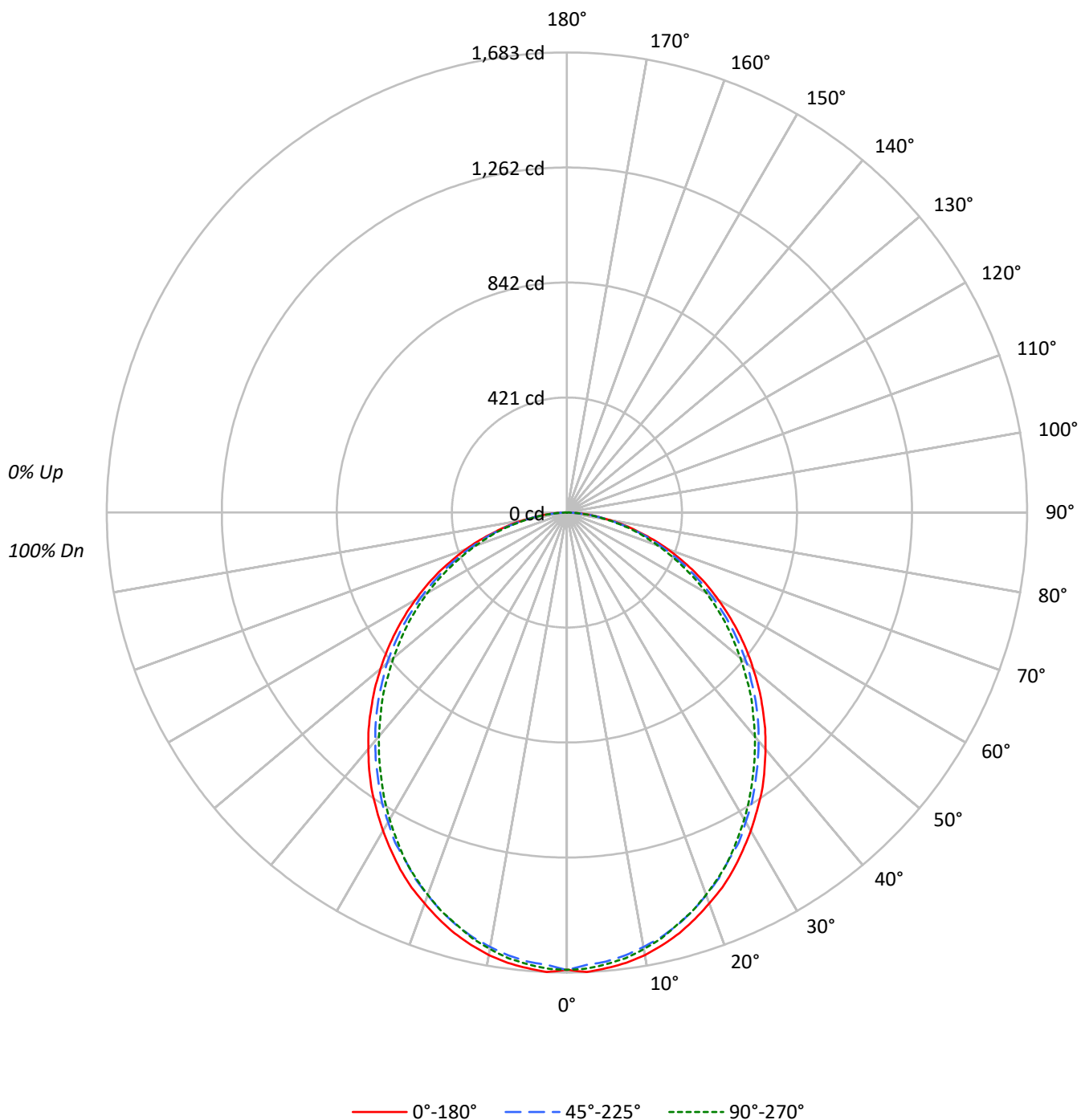
Lumens per Lamp: N/A  
Luminaire Lumens: 4257.0 lumens  
Efficiency: N/A  
Efficacy: 87.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 4.09' x L: 3.54' x H: 0')  
CIE Type: Direct

Input Watts (W): 48.5  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9957  
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   | 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°  | 1244 | 1244 | 1244 |
| 5°  | 1249 | 1231 | 1238 |
| 10° | 1242 | 1218 | 1225 |
| 15° | 1226 | 1203 | 1201 |
| 20° | 1204 | 1179 | 1178 |
| 25° | 1183 | 1150 | 1150 |
| 30° | 1155 | 1123 | 1113 |
| 35° | 1129 | 1091 | 1075 |
| 40° | 1096 | 1059 | 1039 |
| 45° | 1064 | 1027 | 1002 |
| 50° | 1029 | 994  | 958  |
| 55° | 993  | 955  | 920  |
| 60° | 952  | 909  | 876  |
| 65° | 909  | 863  | 824  |
| 70° | 854  | 808  | 770  |
| 75° | 776  | 744  | 726  |
| 80° | 689  | 668  | 634  |
| 85° | 562  | 536  | 480  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1064 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 157.5  | 3.7       |
| 10°-20°   | 443.1  | 10.4      |
| 20°-30°   | 651.1  | 15.3      |
| 30°-40°   | 756.3  | 17.8      |
| 40°-50°   | 755.3  | 17.7      |
| 50°-60°   | 658.6  | 15.5      |
| 60°-70°   | 486.9  | 11.4      |
| 70°-80°   | 275.5  | 6.5       |
| 80°-90°   | 72.7   | 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°    | 1251.7 | 29.4      |
| 0°-40°    | 2008.0 | 47.2      |
| 0°-60°    | 3421.9 | 80.4      |
| 0°-90°    | 4257.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4257.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1673 | 1673  | 1673 | 1673  | 1673 |      |
| 5°  | 1673 | 1667  | 1649 | 1662  | 1659 | 159  |
| 15° | 1593 | 1583  | 1562 | 1569  | 1561 | 449  |
| 25° | 1442 | 1429  | 1401 | 1404  | 1401 | 663  |
| 35° | 1244 | 1228  | 1202 | 1192  | 1184 | 777  |
| 45° | 1012 | 1001  | 976  | 959   | 952  | 781  |
| 55° | 766  | 756   | 737  | 718   | 710  | 685  |
| 65° | 516  | 507   | 491  | 476   | 468  | 511  |
| 75° | 270  | 267   | 259  | 249   | 253  | 288  |
| 85° | 66   | 64    | 63   | 58    | 56   | 77   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1673.1 | 1673.1 | 1673.1 | 1673.1 | 1673.1 |
| 2.5°  | 1682.8 | 1674.8 | 1657.1 | 1673.1 | 1670.1 |
| 5°    | 1673.1 | 1666.9 | 1649.0 | 1661.9 | 1658.9 |
| 7.5°  | 1661.9 | 1652.3 | 1634.6 | 1647.6 | 1644.3 |
| 10°   | 1644.3 | 1633.1 | 1613.8 | 1626.5 | 1621.8 |
| 12.5° | 1620.1 | 1610.5 | 1591.3 | 1599.3 | 1596.0 |
| 15°   | 1592.7 | 1583.2 | 1562.2 | 1568.7 | 1560.6 |
| 17.5° | 1558.9 | 1549.4 | 1528.4 | 1536.4 | 1528.4 |
| 20°   | 1521.9 | 1512.4 | 1489.9 | 1494.6 | 1488.3 |
| 22.5° | 1485.0 | 1470.5 | 1449.5 | 1449.5 | 1446.3 |
| 25°   | 1441.5 | 1428.7 | 1401.4 | 1404.5 | 1401.4 |
| 27.5° | 1393.2 | 1381.9 | 1361.1 | 1356.3 | 1348.3 |
| 30°   | 1345.0 | 1332.1 | 1308.1 | 1303.2 | 1296.8 |
| 32.5° | 1293.5 | 1284.0 | 1258.2 | 1248.5 | 1242.0 |
| 35°   | 1243.6 | 1227.6 | 1201.8 | 1192.1 | 1184.1 |
| 37.5° | 1187.3 | 1172.9 | 1147.1 | 1135.8 | 1127.8 |
| 40°   | 1129.5 | 1116.5 | 1090.7 | 1076.4 | 1069.9 |
| 42.5° | 1073.2 | 1060.2 | 1034.6 | 1018.3 | 1008.8 |
| 45°   | 1012.0 | 1000.8 | 976.5  | 959.0  | 952.4  |
| 47.5° | 952.4  | 941.2  | 915.5  | 897.7  | 888.1  |
| 50°   | 889.7  | 881.7  | 859.1  | 836.6  | 828.5  |
| 52.5° | 828.5  | 817.3  | 796.4  | 778.7  | 767.5  |
| 55°   | 765.9  | 756.2  | 736.8  | 717.6  | 709.6  |
| 57.5° | 703.0  | 695.1  | 674.1  | 654.8  | 648.3  |
| 60°   | 640.3  | 634.0  | 611.5  | 593.7  | 588.9  |
| 62.5° | 579.2  | 567.9  | 551.9  | 535.8  | 529.3  |
| 65°   | 516.5  | 506.8  | 490.7  | 476.3  | 468.2  |
| 67.5° | 452.2  | 444.0  | 429.7  | 418.4  | 411.9  |
| 70°   | 392.6  | 386.1  | 371.6  | 360.3  | 354.1  |
| 72.5° | 331.5  | 325.0  | 317.0  | 305.7  | 300.9  |
| 75°   | 270.2  | 267.1  | 258.9  | 249.4  | 252.7  |
| 77.5° | 215.6  | 209.1  | 205.9  | 201.1  | 196.3  |
| 80°   | 161.0  | 159.3  | 156.0  | 151.3  | 148.0  |
| 82.5° | 109.4  | 109.4  | 107.8  | 101.4  | 101.4  |
| 85°   | 65.9   | 64.3   | 62.8   | 57.9   | 56.3   |
| 87.5° | 29.0   | 25.8   | 22.5   | 17.7   | 16.1   |
| 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 | 12.04            | 13.65 | 12.41 | 13.97 | 14.28 | 11.60          | 13.21 | 11.96 | 13.52 | 13.84 |
|                 | 3H   | 13.79            | 15.25 | 14.17 | 15.57 | 15.93 | 13.30          | 14.76 | 13.68 | 15.08 | 15.44 |
|                 | 4H   | 14.44            | 15.81 | 14.84 | 16.15 | 16.53 | 13.94          | 15.31 | 14.34 | 15.66 | 16.04 |
|                 | 6H   | 14.91            | 16.18 | 15.32 | 16.54 | 16.93 | 14.41          | 15.67 | 14.82 | 16.04 | 16.43 |
|                 | 8H   | 15.05            | 16.26 | 15.47 | 16.65 | 17.05 | 14.55          | 15.76 | 14.97 | 16.15 | 16.55 |
|                 | 12H  | 15.14            | 16.30 | 15.57 | 16.68 | 17.11 | 14.63          | 15.79 | 15.06 | 16.17 | 16.60 |
| 4H              | 2H   | 12.60            | 13.97 | 13.00 | 14.32 | 14.69 | 12.25          | 13.62 | 12.65 | 13.97 | 14.34 |
|                 | 3H   | 14.58            | 15.72 | 14.99 | 16.12 | 16.52 | 14.17          | 15.32 | 14.58 | 15.71 | 16.11 |
|                 | 4H   | 15.35            | 16.39 | 15.78 | 16.80 | 17.24 | 14.93          | 15.97 | 15.36 | 16.38 | 16.82 |
|                 | 6H   | 15.95            | 16.85 | 16.40 | 17.30 | 17.75 | 15.52          | 16.42 | 15.97 | 16.86 | 17.32 |
|                 | 8H   | 16.14            | 16.99 | 16.60 | 17.43 | 17.89 | 15.70          | 16.55 | 16.16 | 16.99 | 17.46 |
|                 | 12H  | 16.27            | 17.03 | 16.75 | 17.51 | 17.98 | 15.82          | 16.58 | 16.30 | 17.06 | 17.52 |
| 8H              | 4H   | 15.63            | 16.47 | 16.09 | 16.92 | 17.38 | 15.25          | 16.10 | 15.71 | 16.54 | 17.01 |
|                 | 6H   | 16.34            | 17.04 | 16.83 | 17.53 | 18.01 | 15.96          | 16.66 | 16.45 | 17.15 | 17.63 |
|                 | 8H   | 16.60            | 17.23 | 17.11 | 17.74 | 18.22 | 16.21          | 16.84 | 16.72 | 17.35 | 17.83 |
|                 | 12H  | 16.80            | 17.36 | 17.31 | 17.85 | 18.41 | 16.39          | 16.95 | 16.89 | 17.44 | 18.00 |
| 12H             | 4H   | 15.65            | 16.41 | 16.13 | 16.89 | 17.36 | 15.29          | 16.05 | 15.77 | 16.52 | 16.99 |
|                 | 6H   | 16.39            | 17.02 | 16.90 | 17.53 | 18.01 | 16.02          | 16.65 | 16.53 | 17.16 | 17.64 |
|                 | 8H   | 16.70            | 17.26 | 17.21 | 17.75 | 18.31 | 16.32          | 16.88 | 16.83 | 17.37 | 17.93 |